AFL Telecommunications
A Fujikura Business

Access Solutions FTTx

G-PON Networks

GE-PON Networks

Point-to-Point Networks

Business Modeling Tool

Ethernet Electronics

Fiber Management & Closures

Optical Connectivity

Installation & Maintenance Equipment

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End-to-End System Integration

Take your network to the "last mile" by starting with the experts who can make it happen. Start with AFL Telecommunications. Once you decide to expand a fiber network closer to the subscriber, the next step is getting it accomplished. AFL's Access Solutions team is ready to help. An application-based solutions provider, AFL Telecommunications delivers a tip-to-tip solution including proven Ethernet-based electronics, passive infrastructure, extensive system engineering and FTTx business modeling expertise.

FTTH™
MADE EASY
www.FTTHeasy.com

AFL Telecommunications is the only provider that offers a portfolio including PON, or active electronics, and tip-to-tip passive infrastructure. Our applications engineering team is ready to determine your best network solution.

Passive Optical Network (PON)

AFL designs and furnishes a network that is completely passive from the central office/head-end to the subscriber demarcation point. Options include RF and/or IP video solutions. A passive network means less provisioning, reduced maintenance and lower operating costs. This solution can be used for single family residences, businesses and multi-dwelling units.

Point-to-Point Network

AFL designs and furnishes a point-to-point or "active" Ethernet Fiber-to-the-Subscriber solution. Options include RF and/or IP video solutions. A point-to-point network is CapEx friendly and provides more control over network design and bandwidth. This solution can be used for single family residences, businesses and multi-dwelling units.

End-to-End System Integration

In addition to AFL's FTTx electronics and passive infrastructure, we also provide solutions for a variety of critical network needs:

RF Video – EDFA, Transmitter, Receivers
IP Video – Encoders, Middleware
VoIP – Softswitch and Hosted-VoIP Solutions
Bandwidth Management
Ethernet Solutions – Routers, Switches, Media Converters
UPS/Battery Back-up

Community Fiber Consortium
Founding Member

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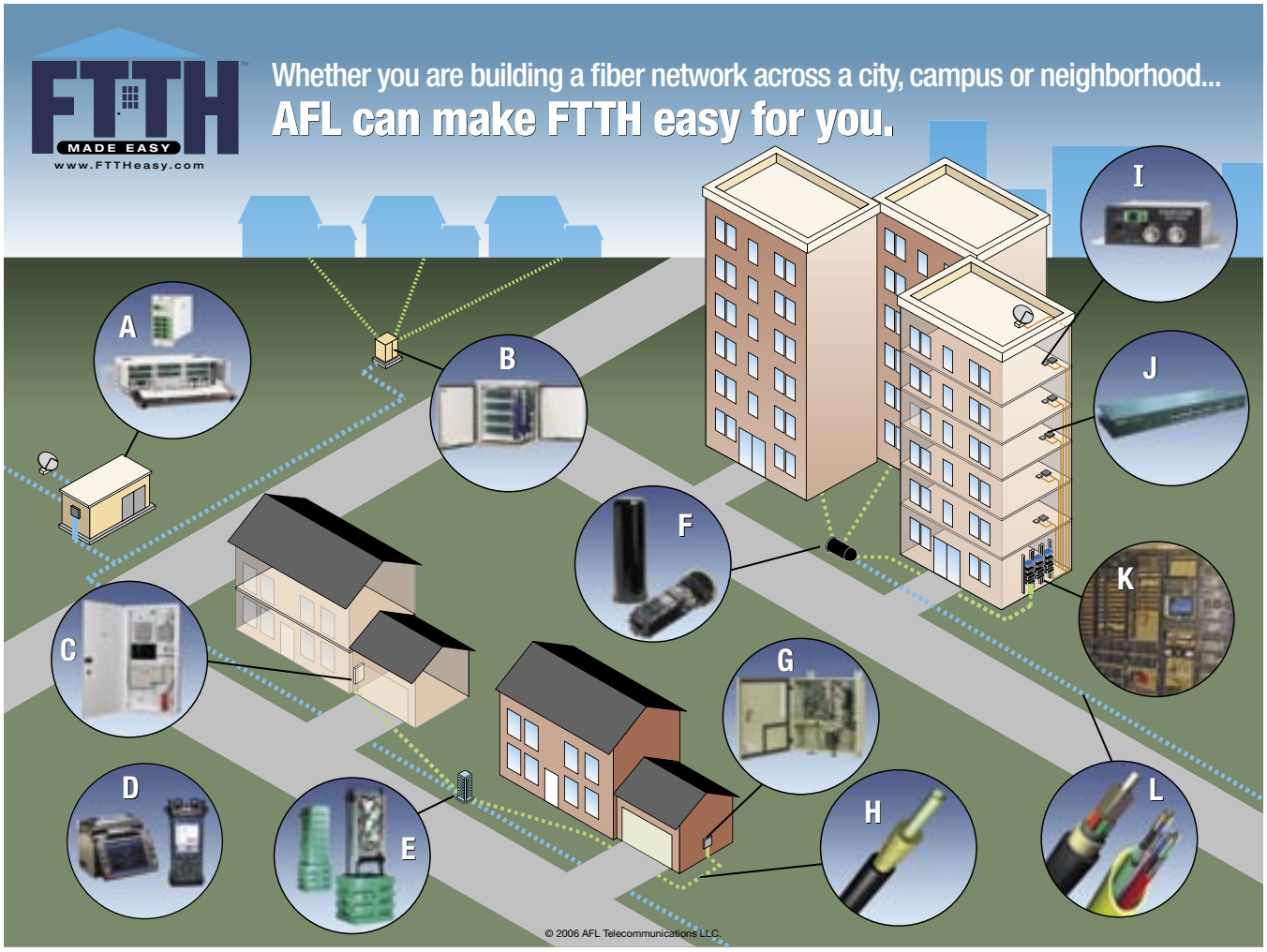

A. Fiber Management & Optical Connectivity
The Fiber Management & Optical Connectivity lines consist of Rack & Wall Mount Panels, Patch & Splice Modules, Coupler Modules, Cable Assemblies and Field Installable Connectors.

B. Fiber Distribution Hub
The FDH is designed to provide a local convergence point in the Outside Plant environment, housing optical splitters that link feeder cables from the CO to distribution cables serving the customer.

C. Indoor Gateway
The Indoor Gateway is an integrated solution packaged with the following: fiber demarcation point, IP services gateway, RF video receiver and a DC power UPS.

D. Splice & Test Equipment
Our Fujikura splicers are the most widely used in the world, and known for their performance, productivity and reliability. Noyes Fiber Products, a division of AFL Telecommunications, manufactures a complete line of fiber optic test equipment for measuring, maintaining and documenting the performance of fiber optic networks.

E. Distribution & Pedestal Closures
Distribution and Pedestal Closures provide for organizing, splicing, and interconnecting fibers in FTTx, broadband and distribution applications.

F. Fiber Splice Closures
Fiber Splice Closures are designed to simplify splice management. Quality engineering reduces the installation time, training and complexity associated with fiber splicing in the field.

G. Hardened Gateway
Hardened Gateways are designed to deliver voice, video, and data services to homes, SOHO, and small enterprise.

H. Drop Cable
Drop Cable is specifically designed for Fiber-to-the-Subscriber and accommodates self-supporting, lashed, and conduit applications.

I. Video Receiver
Allows DBS, CATV plus Terrestrial TV to be brought into the home over a Single Fiber.

J. Ethernet Solutions
AFL offers a wide range of Ethernet Solutions for your FTTH needs, from connectivity and management platforms to media converters and switching products.

K. Triple Play Headend
AFL can provide a wide range of integrated headend solutions. Capabilities include RF video (CATV and L Band), IP Video and VoIP.

L. Loose Tube & MicroCore® Cables
AFL offers a full line high-quality line of loose tube cables for lashed aerial, duct and direct buried applications. Our MicroCore® is an advanced fiber optic cable technology that allows maximum utilization of existing or future conduit systems with minimal initial investment.

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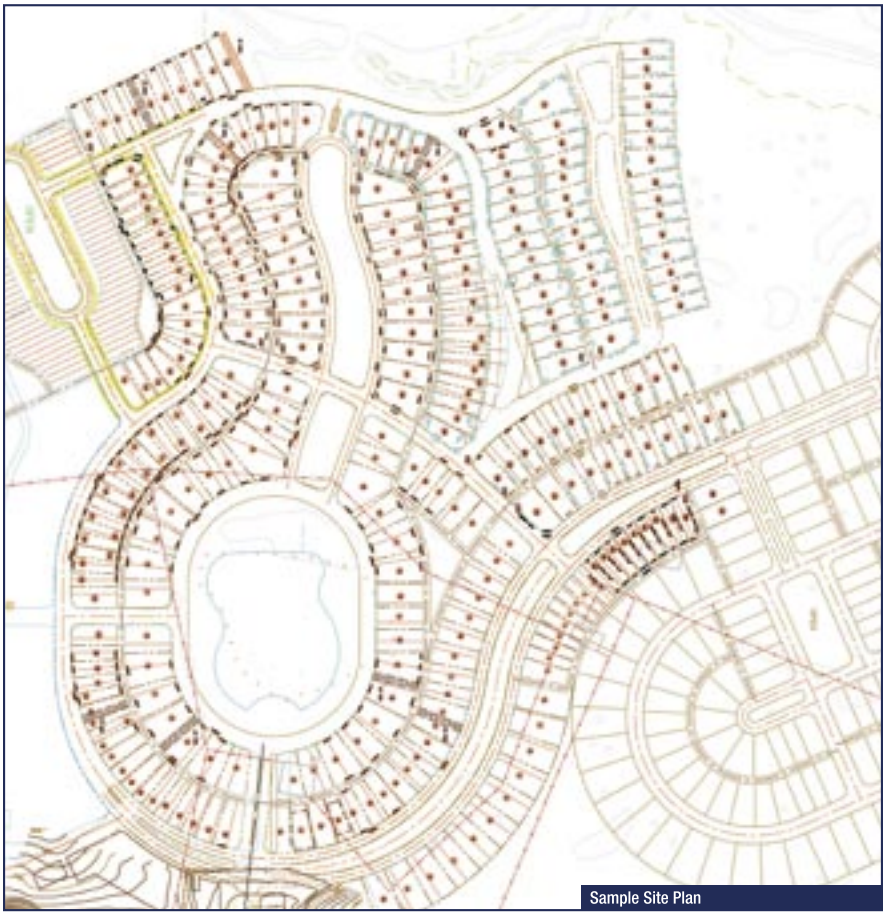
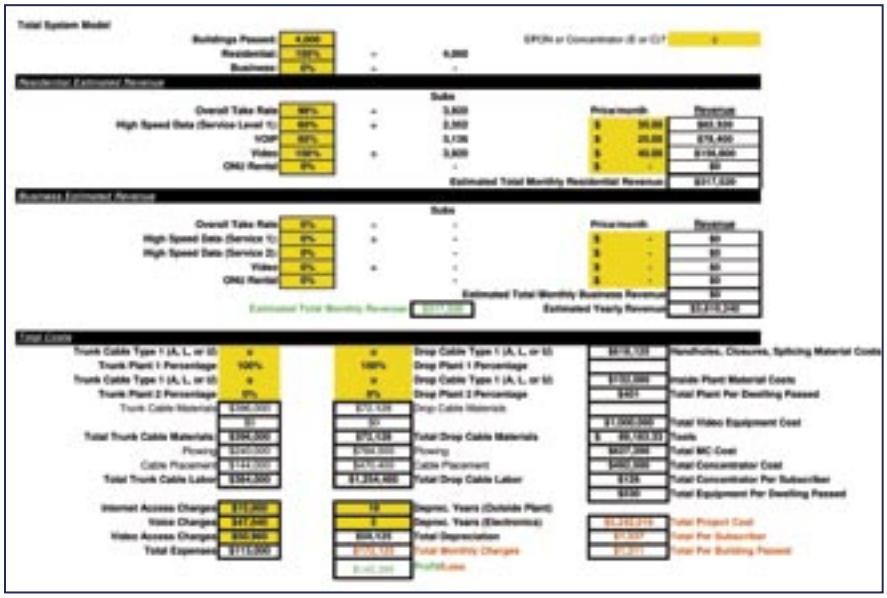
FTTx Business Model Tool



Sample Site Plan



Getting Started

AFL can take you from site plan to a reliable FTTH business case. AFL is ready to get you started today by utilizing our FTTx Business Modeling Tool that includes the following:

- Extensive ROI modeling engine
- Architectures supported
  - PON
  - Point-to-Point / Active
  - Hybrid Fiber BPL or WiFi
- Supports phased market rollout
- Wide range of user-definable inputs
- Board Ready Outputs

Customer Input

Subscribers, network architecture, OpEx & CapEx variables

AFL Expertise

One-on-one engineering combined with FTTx Business Modeling

Model Output

Full financial model: ROI, cash flow and bill of materials

If you're interested in learning more about how you can build an FTTx network, contact AFL Telecommunications.

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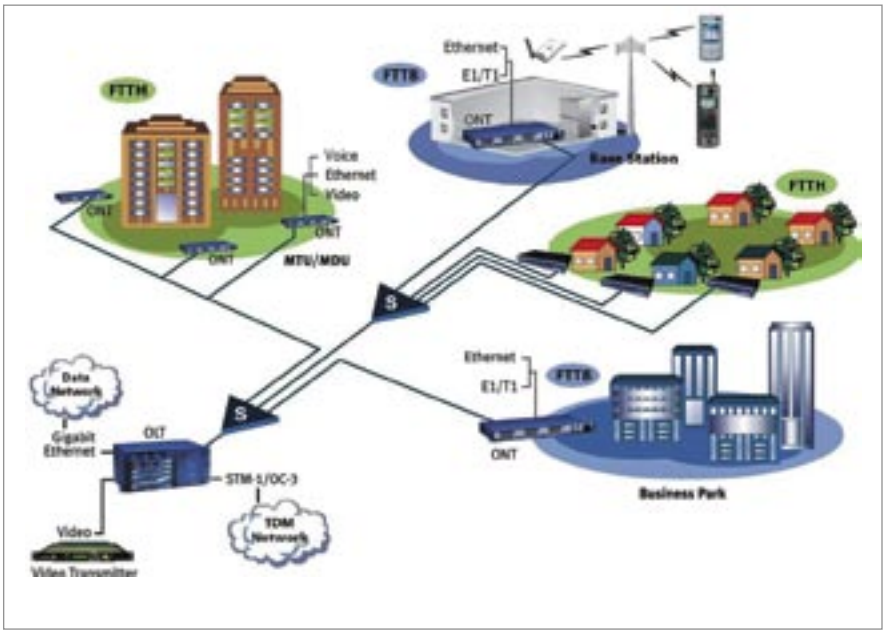
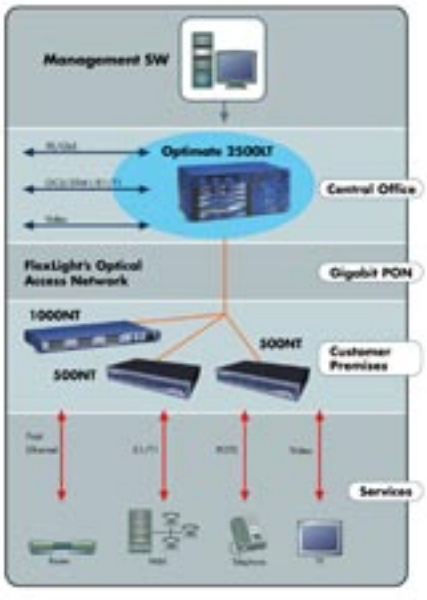
GPON Networks

AFL, a leading supplier of fiber optic products and services, is a reseller for FlexLight Networks, Inc., a leading GPON (Gigabit Passive Optical Network, ITU-T G.984.x) With this partnership, AFL now deploys the next-level GPON technology.

AFL offers Fiber-to-the-Home / Fiber-to-the-Business solutions for the Municipal and Greenfield FTTH market segments, in addition to other markets served by AFL. AFL is now one of the strongest one-source providers of optical FTTx solutions for the provisioning of Ethernet, Voice and Video services.





FlexLight's GPON architecture is the only system that provides fiber redundancy to date and was the first ITU-T G,984 compliant system. The system is managed through Flex-Manage, an advanced web-based network management tool. The network infrastructure is supported by AFL's reliable optical passive components such as fiber closures, racks, connectors, optical splitters and panels.

Features of the GPON Architecture

- First ITU-T G.984 GPON Compliant System
- 2.488 / 1.244 Gps transmission rates
- Long Reach: 35Km. High Split 32 ONTs
- Over 92% Transport Efficiency
- Full Network & PON Redundancy
- Economic delivery of Ethernet & Native TDM (E1, POTS)

Powered by: FlexLight NETWORKS

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Optimate 2500 LT

Optimate 1000 NT

Optimate 500NT

GPON Electronics

Optimate 2500 LT

High Capacity Optical Line Terminal - OLT

The Optimate 2500LT is a high capacity optical unit, which combines CWDM, Gigabit Ethernet (Gbe) and SONET/SDH to transport voice, data and video services, over a Gigabit Passive Optical Network (GPON).

Optimate 1000 NT

High Capacity Optical Customer Premise Equipment - CPE

The Optimate 1000NT supports the transport of various customer services, such as Ethernet (10/100 Base T), Video, POTS and Native E1/T1 over a passive optical network.

Optimate 500NT Series

Optical Network Termination - ONT

The Optimate 500NT product line supports broadband triple play services to small business, small/home office (SOHO) and residential customers (SFU).

FlexManage

FlexManage, a network management solution, is an advanced, web based management system. FlexManage offers full FCAPS (Fault, Configuration, Accounting, Performance and Security) capabilities over the PON. The features implemented support fault analysis, service configuration, performance monitoring and enhanced security abilities. FlexManage is unique in its ease of provisioning and quick service activation, for voice, data or video provisioning over the PON network.

Powered by: FlexLight NETWORKS

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Gigabit Ethernet PON (GE-PON) Solution

Proven PON Technology for Ethernet in the "First Mile."

ONU (FNP6010)

OLT (FNP4101)

Fujikura's FNP4101 Gigabit Ethernet PON solution offers full compliance with the IEEE 802.3ah PON standard while retaining the scalability and switched-Ethernet operating features of Fujikura's widely-deployed FNP2101 platform.

The 1RU Optical Line Terminal (OLT) has four PON ports that each support 1.25 Gb/s of symmetrical bandwidth and up to 32 direct fiber connections to subscribers. At the customer's premise, each Optical Network Unit (ONU) supports burst capabilities up to a full Gigabit.

The GE-PON combines Layer-2 Ethernet simplicity with carrier-class security, monitoring, and administrative features.

Features

- Supports up to 32 connections over a single fiber within a 20 km radius
- Unique non-linear distortion control features to enable RF video overlay while retaining full compliance with IEEE 802.3ah
- Capability to assign bandwidth limits, bandwidth guarantees, and bandwidth burst capability by subscriber
- Ability to support both 802.1q tagged and untagged traffic at the subscriber premise
- Stacked VLAN support
- Class of Service Prioritization
- Redundant and hot-swappable power supply
- Full suite of SNMP traps, security and administrative features

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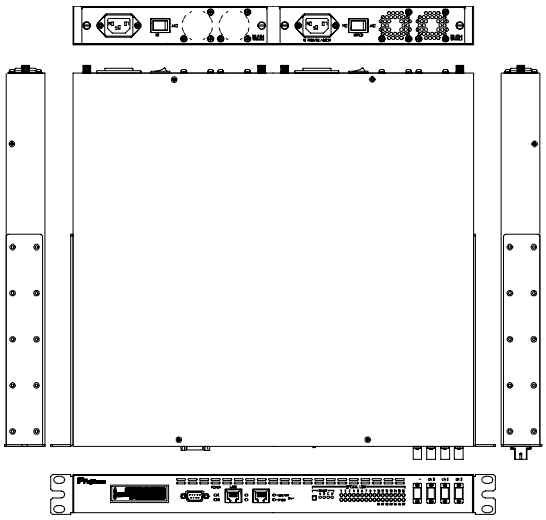
Gigabit Ethernet PON (GE-PON) Solution

OLT (Optical Line Terminal)



Physical Specifications

PARAMETER	VALUE *
Dimensions (W x D x H)	17.14in (435mm) x 15.96in (405mm) x 1.65in (42mm)
Weight	17.64 lbs (8 kg)

* Specifications do not include brackets or any other attachments.

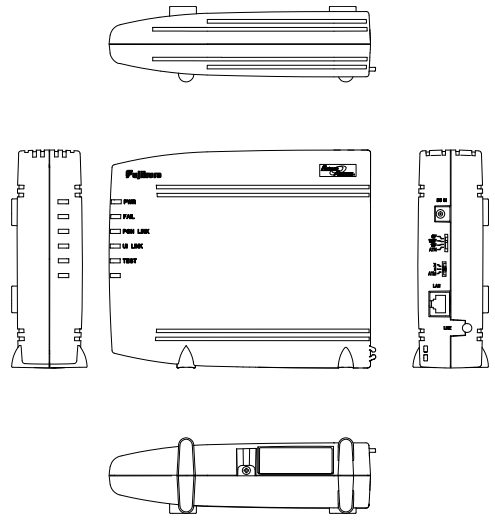
Interface Specifications

INTERFACE	QTY	SPECIFICATION
Uplink port 100/1000BASE-T	2	100/1000BASE-T Auto-negotiation Full duplex RJ-45 MDI-X
Console port	1	RS-232C D-SUB 9pin

Port Specifications

PARAMETER	VALUE
Wavelength	1490nm (Tx) / 1310nm (Rx)
Optical output	+2 ~ +7dBm
Sensitivity	-9 ~ -29.5dBm
Fiber	Singlemode
Connector	SC (PC polish)

ONU (Optical Network Unit)



Physical Specifications

PARAMETER	VALUE *
Dimensions (W x D x H)	5.91in (150mm) x 7.08in (180mm) x 2.04in (52mm)
Weight	1.10 lbs (0.5 kg)

* Specifications do not include brackets or any other attachments.

Interface Specifications

INTERFACE	QTY	SPECIFICATION
LAN port 10/100/1000BASE-T	1	10/100/1000BASE-T Auto-negotiation Full duplex/Half duplex support RJ-45 MDI-X

Port Specifications

PARAMETER	VALUE
Wavelength	1310nm (Tx) / 1490nm (Rx)
Optical output	-0.5 ~ +4.5dBm
Sensitivity	-3 ~ -25.5dBm
Fiber	Singlemode
Connector	SC (PC polish)

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Edgegate GW-482

Cost-effective, triple play, active Ethernet FTTH/B solution for ILECs, Utilities, and Municipalities

EdgeGate CPE GW-482 is a multi-service CPE device designed to reduce the cost of delivering voice, video, and data services to homes, SOHO, and small enterprise. It is based on field-proven EdgeGate CPE GW-282, which is deployed in and outside thousands of homes and businesses worldwide.

EdgeGate CPE GW-482 is available as either an indoor device or is equipped in an environmentally controlled enclosure, suitable for mounting on a building's exterior, for service provider access. It offers ILECs, utilities, and municipalities a cost-effective means to deliver triple play services while ensuring high reliability and availability of their networks. It's ideal for open access applications in which one service provider offers access and multiple providers deliver triple play services, as well as for cases were the service provider delivers both.

Features

- **Superior voice quality - 0, 2, 4 port modularity**
  - Voice priority
  - Layer 3 TOS marking
  - 802.1p
  - 802.1q
- **8 10/100BaseTX LAN ports**
- **Uplink options**
  - 100BaseX pluggable SFP (mini-GBIC) - MM, SM, bi-directional
  - 1000BaseX pluggable SFP (mini-GBIC) - MM, SM, bi-directional
- **Supports ITU H.323, MGCP, and SIP**
- **Enhanced voice**
  - Automatic tone generation: dial, busy, ring-back, stutter tone, distinctive ring
  - DTMF detection and generation
  - Voice activity detection and prioritization
  - Call forwarding, hold, 3-way conferencing, etc.
- **Option for built-in charger and backup battery**

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Edgegate GW-482

Specifications

PARAMETER	VALUE
VoIP Protocols	SIP (RFC 2543, RFC 3261 selected sections) MGCP (RFC 2705, NCS) ITU H.323 FXS Ports number – 0, 2, 4 Connector RJ-11 for analog phones (POTS) Life Line
Voice CODECs	ITU G.711 (µ-law, A-law) ITU G.723.1 ITU G.726 ITU G.729A/B T.38 fax relay (SIP, H.323) Automatic fax/modem detection Voice Activity Detection (VAD) Comfort Noise Generation (CNG) Caller ID Error Mitigation Adaptive Jitter buffer 5 REN (distance dependent) RTP voice packet encapsulation
Routing and Provisioning	IPSec/ VPN pass-through RFC 2068 HTTP Static and dynamic IP address assignment
Quality of Service	16 802.1q VLANs VLAN tagging IEEE 802.1q Voice priority over data IEEE 802.1p IEEE 802.3
Video	IGMPv2 snooping with fast leave RFC 2236 IGMPv2
Uplink Interface - SFP	100BaseFX MMF, SMF, bi-directional 1000BaseX SX, LX, ZX Connector: LC Transmission: Full/half duplex, auto negotiation, pluggable transceiver
LAN Interface	10/100BaseTX auto negotiation Connector: RJ-45 Ports 8 in the 1G product and 7 in the 100M Transmission: Full/half duplex, auto negotiation, auto detect
LAN Cabling	10BaseT: UTP, Cat. 3/4/5, 333 ft. (100m) 100BaseTX: UTP, Cat. 5, 333 ft. (100m)
Management	Web-based management Remote auto configuration via TFTP and HTTP IP Configuration DHCP or static SW download/upgrade via TFTP and HTTP, secure, reliable mechanism SNMP TELNET
Security	Passwords, encrypted configuration file, NMS community password
Dimensions	12.6" (H) x 12.6" (W) x 4.1" (D) 320mm (H) x 320mm (W) x 105mm (D)
Power	90-264 VAC, 50-60 Hz
Weight	7.72 lb (3.5Kg) not including battery
Operating Temperature	-40° to 55°C (-40º to 131ºF)
Operating Humidity	10% to 90% non-condensing
Emission and Safety Regulations	FCC Class B, UL, CUL, CE

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GW-232

Edgegate GW-232

Mini EdgeGate Voice over IP & FTTH Media Gateway

Features

- Integrated Voice (VoIP), Video and Data IP media gateway
- 2 Voice (FXS) ports
- 3 Data 10/100BaseTX ports
- 1 Uplink/ WAN port – 10/100BaseTX or 100BaseFX
- 1 PSTN Life Line port – guarantees phone always-on
- 1 CLI ports
- Enhanced Video capabilities
- Full support for ITU SIP, MGCP and H.323
- Enhanced L2 switching capabilities Wire speed performance
- Integrated Web server
- Automatic tone generation: Dial, Busy, Ring-Back
- DTMF detection and generation
- Voice activity detection & prioritization
- IGMP Snooping
- Automatic configuration (BOOTP)
- T.38 Facsimile over IP support

The EdgeGate GW-232 series voice over IP and FTTH media gateways are the most efficient, flexible, and powerful devices in their class. With operations established worldwide, many satisfied end-users benefit from the EdgeGate family use by converging broadband services such as voice, video and data over a single IP infrastructure. The GW-232 supports various configurations of up to 2 analog voice lines and up to 4 10/100 Mbps Ethernet ports, including 100 Mbps Ethernet optical uplink. Thus, the EdgeGate GW-232 series VoIP and FTTH gateways cover the entire spectrum of requirements for both enterprise VoIP environment and remote office connectivity.
Furthermore, the EdgeGate GW-232 series platforms are capable of providing Enhanced Layer 2 IP switching with VLAN tagging, TOS marking (L3), security and Quality of Service (QoS) features support.

Fiber-to-the-Home/Apartment (FTTH/A). The EdgeGate's flexible architecture enables it to be the only VoIP gateway platform that supports a variety of transmission technologies, such as 100Mbps copper or fiber single-mode, multi-mode and even bi-directional (single fiber usage) fiber optics. Fiber support, with 100Mbps bandwidth, enables the end user to enjoy any broadband bandwidth-hungry application, such as Video-On-Demand, and enables the service provider to provide this service in wide distribution area, while maintaining high quality of service.

Voice (VoIP), video and data convergence. The EdgeGate GW-232 series is the ideal CPE solution for service providers looking to deliver voice, video and data over copper/fiber to the end user. As these services are delivered over the same network infrastructure, it is imperative that CPE devices support higher-level Ethernet standards to ensure the successful delivery of voice, video and data. The EdgeGate GW-232 series support 802.1p QoS (voice over data & video priority), 802.1q VLAN tagging, Spanning Tree Protocol and IGMPv2 (for video streaming applications). The EdgeGate GW-232 currently supports all present VoIP protocols including SIP, MGCP and H.323.
Other basic protocols, too, can be enabled. This adherence to standards allows users to have maximum interoperability with the existing network infrastructure.

Small and medium enterprises usage. The EdgeGate GW-232 series is the unequivocal solution for small and medium enterprises, due to its unparalleled combination of reliability, functionality, and economy. Users can easily set up phone calls through the IP network while simultaneously use the GW-232 as a high bandwidth enterprise network connection.

Manageability. GW-232 can be managed by CLI, SNMP, HTTP, Telnet, local terminal and download of configuration and new software via DHCP server. In addition, the EdgeGate GW-232 series, like all Telco Systems IP platforms, is supported by BiNOSCenter, the Telco Systems'Element/Network Management System.

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Edgegate GW-232

Specifications

PARAMETER	VALUE
Compatibility	VoIP: ITU H.323, MGCP, SIP (including NAT solution.) Voice CODECs: ITU G.711, ITU G.723.1, ITU G.726, ITU G.729A/B Voice: ITU FXS, ITU T.38 (H.323, SIP), VAD, CNG, Caller ID, 2 REN, RTP, automatic fax/modem detection Switching: IEEE 802.3, IEEE 802.3u, IEEE 802.1p, IEEE 802.1q, RFC 2068 HTTP, IGMP snooping with fast leave, TOS marking
LAN Interface	10/100BaseTX Connector: RJ-45 Transmission: full/half-duplex Range: 100m
Uplink/ WAN	100BaseFX single-mode Connectors: dual SC Transmission: full/half-duplex Optical budget: 14db/30db Fiber: 9/125 micron, 1310nm Range: 14km
Telephony Interface	Analog Connector: RJ-11 (POTS)
Switching Characteristics	Technology: ASIC-based parallel store and forward Address Table: 1K MAC addresses
Forwarding Rate	10Mbps – up to 14,880 pps 100Mbps – up to 148,800 pps
Indicators	Management Green flashing (CPU traffic) Voice Green (Gatekeeper/Controller connection) Ready Green flashing Power Green
Management	Internet Web-based management SNMP Client MIBs MIB II, Private MIB Interfaces: CLI, Telnet, SNMP, Web; remote auto-configuration via TFTP SW Download via TFTP
Security	Passwords, encrypted configuration file, NMS community password
General	Dimensions: 1.77" H x 7.36" L x 4.72" W 45mm H x 187mm L x 120mm W Power: 4.5 VDC external power supply Weight: 1.32 lb, 0.6 kg Operating Temp.: 0º - 45º C (32º - 113º F) Operating Humidity: 10% - 90% non-condensing
Emission and Safety Regulations	FCC Class B, UL, CUL, CE

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FNT3824

FNT3012

Ethernet Concentrator

AFL's 24-Port Ethernet Concentrator is the ideal way to extend fiber connections from a Gigabit Ethernet fiber backbone to the home, business, or desktop. Each downstream port provides up to 100Mb full-duplex service over a single optical fiber while two Gigabit uplink ports can be provided in single-mode, multimode, or UTP configurations. The FNT3824 represents a cost-effective solution for the LAN while providing a full suite of carrier-class service and management features for Fiber-To-The-Premise deployment.

The FNT3012 single-fiber customer premise device offers the perfect complement to the FNT3824. The FNT3012 offers full-duplex 100Mb capability over a single fiber, streamlining fiber counts, fiber management, and installation costs. Additionally, the technology of the FNT3012 offers the management and future proofing expected of a carrier platform at price points that compete against today's LAN solutions.

Management

- Console Port Access
- Telnet
- SNMP Agent
- Web-Based GUI
- FTP/TFTP
- MIB
- RMON

Standards

- IEEE 802.1d (Bridge)
- IEEE 802.1p (Packet Prioritization)
- IEEE 802.1q (VLAN)
- IEEE 802.3ab (1000BASE-T)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3x (Flow Control)
- IEEE 802.3z (1000BASE-SX/LX)
- TTC TS-1000 Class S

Product Features

FNT3824:

- Spanning Tree Protocol (STP)
- 802.1q and Port-Based VLAN Capabilities
- GVRP (Generic VLAN Registration Protocol)
- IGMP (Internet Group Management Protocol)
- NTP
- DHCP Server / Relay
- Link Aggregation Control Protocol
- ARP
- 802.1p Packet Prioritization with WRED
- Multiple QoS Options
- Port Bandwidth Rate Control (100 Kb/sec increments)
- Daisy-Chain (Manual Trunking)
- MAC Address Filtering
- Port Mirroring

FNT3012:

- Robust Optical Loss Budget
- Single-Fiber Connectivity
- Loopback Test Function
- TTC TS-1000 Management Features
- Auto-Negotiation
- Integrated Fiber Management
- SNMP Traps
- Designed for Desktop or Wall Mount

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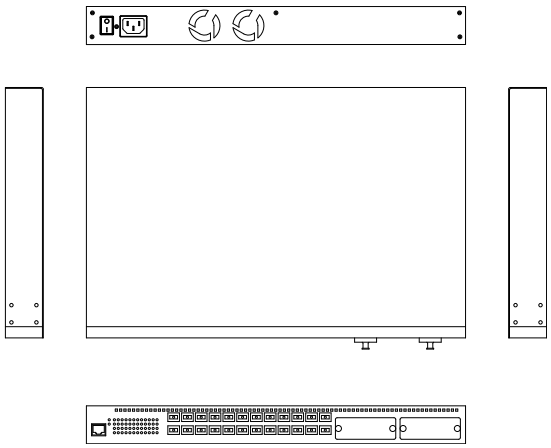
Ethernet Concentrator

Concentrator



Physical Specifications

PARAMETER	VALUE*
Dimensions (W x D x H)	17.34in (440mm) x 11.43in (290mm) x 1.73in (44mm)
Weight	8.82 lbs (4 kg)

* Specifications do not include brackets or any other attachments.

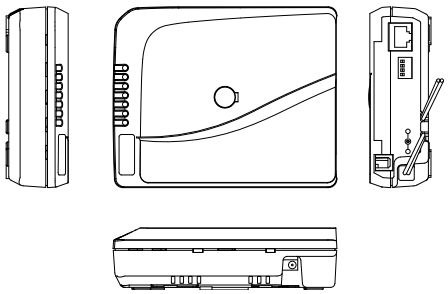
Interface Specifications

INTERFACE	QTY	SPECIFICATION
Uplink port	2	UTP: 100/1000BASE-T Multimode: 1000BASE-SX Single-mode: 1000BASE-LX
Console port	1	RJ-45
Subscriber port	24	100BASE-BX

Port Specifications

PARAMETER	VALUE
Wavelength	1550nm (Tx) / 1310nm (Rx)
Optical loss budget	0 to 16dB
Fiber	Standard Single-mode
Connector	Standard SC (non-angled)

Media Converter



Physical Specifications

PARAMETER	VALUE*
Dimensions (W x D x H)	4.13in (105mm)W x 5.12in (130mm)D x 1.38in (35mm)H
Weight	.66 lbs (.3 kg)

* Specifications do not include brackets or any other attachments.

Interface Specifications

INTERFACE	QTY	SPECIFICATION
LAN port	1	10/100BASE-TX 100BASE-BX

Port Specifications

PARAMETER	VALUE
Wavelength	1310nm (Tx) / 1550nm (Rx)
Optical Loss Budget	0 to 16dB
Fiber	Standard Single-mode
Connector	Standard SC (non-angled)

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Indoor Gateway

AFL offers a wide range of FTTH Subscriber Gateway solutions. Pictured here is an integrated solution packaged within a standard Leviton Structured Media Center (SMC). The SMC is populated with the following solution:

- Fiber demarcation point
  (transitions drop cable to subscriber equipment)
- IP services gateway (VoIP, Data, Video) – capability of 100 Mbps symmetric bandwidth
- RF video receiver (CATV and L Band) – 54 to 3500 MHz frequency range
- DC power UPS (battery back-up)

Contact AFL for ordering information.

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iMediaChassis

SNMP Manageable Fiber Connectivity Platform

Reliable and flexible, the iMediaChassis/20 has the highest port density of any modular, intelligent, carrier-class optical access platform in the industry.

The iMediaChassis series is an intelligent, carrier-grade optical access platform that supports Ethernet, ATM/SONET, T1/E1, DS3/E3 and WDM networking technologies. The iMediaChassis series enables network campus operators and service providers to reduce the capital and operational expenses by providing all copper-to-fiber and multi-mode to single-mode conversions, network distance extensions and Transparent LAN services from the same chassis platform. Installed at the Central Office or the Point-of-Presence, the iMediaChassis/20 supports carrier requirements for the Operations, Administration, Maintenance and Provisioning of Metro Ethernet services.

The iMediaChassis series includes:

- 6-slot (1U high) and 20-slot (3U high) models for installing iMcV series modules
- An additional chassis slot for an optional SNMP management module

MiniMc

10/100 Gig Switching and Gigabit Miniature Media Converters

Cost-effective, space-saving and flexible, the MiniMc series of miniature media converters proves once again that the company that invented media converters continues to develop the best.

Measuring less than 3.5 inches deep and 2 inches wide, IMC Networks' MiniMc is the smallest media converter in the industry which has both data connections on the same side of the unit, and MiniMc is a fraction of the cost of other alternatives. In addition, plug-and-play operation, three model types and various power options make the MiniMc series of miniature media converters easy and convenient to use.

The MiniMc series includes:

- MiniMc TP-TX/FX: Switching converter; 10/100 auto-negotiation on the twisted pair port while the fiber port operates at 100 Mbps Fast Ethernet full duplex
- IE-MiniMc TP-TX/FX: This Industrial Ethernet model is the same as the switching converter listed above, with additional features, including: an operating temperature of up to 70° C, a 4-terminal DC power block which has an extended voltage range (5 to 50VDC), DIN-rail mounting capability, and compliance with the IEEE 802.3af Power over Ethernet standard
- MiniMc-Gigabit: 1.25 Gbps twisted pair conversion to 1.25 Gbps fiber (non-switching)
- Giga-MiniMc: 10/100/1000 Mbps Gigabit Fiber Converter

The MiniMc Industrial series includes:

- AC and DC power options
- Extended voltage range on the DC power block: 5 to 50 VDC input
- Extended operating temperature of -25°C to +70°C
- DIN clips for mounting on a DIN rail
- Compliance with IEEE 802.3af Power over Ethernet standard (IE-MiniMc only)

Powered by: IMC Networks

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AccessEtherLinX

Optical Access Devices

Offering a host of capabilities unique to an Ethernet-based CPE, AccessEtherLinX is the price/ performance market leader.

AccessEtherLinX enables service providers to offer differentiated, bandwidth-scalable data or "Transparent LAN" services to multi-tenant buildings and business customers. Residing at the customer premises, AccessEtherLinX provides a VLAN-based Layer 2 entry point to the last mile fiber network, trunking, differentiating and separating customer traffic. AccessEtherLinX is the price/performance market leader, and offers a host of capabilities unique to an Ethernet-based CPE. AccessEtherLinX is available with three WAN uplink configurations to fit a wide range of service provider applications.

The AccessEtherLinX series includes:

- AccessEtherLinX/3 includes one uplink port and three 10/100 twisted pair Ethernet downlink ports (for connecting users/LANs). AccessEtherLinX/3 is a table-top device that can also be wall- or rack-mounted.
- AccessEtherLinX/4 includes one uplink port and four 10/100 twisted pair Ethernet downlink ports (for connecting users/LANs). AccessEtherLinX/4 is a table-top device that can also be wall- or rack-mounted.

SFP Modules

Small Form Factor Pluggable Modules - 155 Mbps and 1.25 Gigabit Ethernet

SFP modules make changing fiber requirements within the locations of the network environment easy.

SFPs offer the flexibility of choosing fiber types, and also provide diagnostic information to assist the end user in the identification and troubleshooting of the pluggable modules. All SFPs are compliant with the Multi-Source Agreement (MSA), ensuring compatibility with a wide range of networking equipment.

155 Mbps Ethernet SFP Modules

- Compliant with ITU-T G.957, G.958 and IEEE 802.3u
- Up to 155 Mbps data on Fast Ethernet, OC-3/STM-1 and other optical links

1.25 Gbps Gigabit Ethernet SFP Modules

- Compliant with specifications for IEEE 802.3z
- Up to 1.25 Gbps data on Gigabit Ethernet and other optical links

ALL SFP Modules

- Single strand or duplex fiber
- Multi-source package with Duplex LC connector
- Eye Safety designed to meet Laser Class 1 compliance with IECC60825-1
- Complies with Telecordia GR-468-CORE
- Single +3.3V power supply
- Hot-pluggable

Powered by:
IMC Networks

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Ethernet Switching Products

Through our partnership with Lantech Communications, AFL can specify and supply a comprehensive portfolio of flexible and affordable network equipment.

Product Families Include:

- Intellegent Switches
- Web Managed Switches
- Unmanaged Switches
- POE Switches
- Media Converters
- Industrial Ethernet
- Ethernet Accessories

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PL7600

PL5600

High-level Features

- Monitor all your IP traffic in real time
- Total traffic overview down to details on a specific connection
- Find discrepancies in your traffic patterns
- Manage support based on accurate information

Benefits

- Filter unwanted traffic
- Define time-based rules
- Do filtering based on detailed properties like data direction, filename and chat channel
- Rewrite properties – MAC/IP address and DSCP
- DoS/DDoS protection

Bandwidth Management Products

PacketLogic™

PacketLogic is a modular traffic management system that makes it possible to monitor and analyze traffic patterns, in order to optimize for maximum quality and utilization of bandwidth. The PacketLogic system is essential for anyone dependent on Internet access and throughput. It can easily be adapted to different requirements and environments. PacketLogic acts as transparent Layer 2 equipment in the network topology and uses an advanced network stack to keep control of connections.

Features

- Virtual Bridged Local Area Networks
- Prioritize Traffic
- Active Queue Management
- Firewall Traffic
- DRDL Content Recognition
- Rewrite Traffic
- Diffserv Codepoint
- Shape Traffic
- PPPoE

Hardware

The PL5600 is a 19” wide 1U rack-mountable system.

Interfaces

- (2) 10/100/1000Base-T – Channel Interfaces
- (2) 10/100Base-T – Admin/AUX Interfaces

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RF Video

1550nm Fiber Optic Transmitter

- Up to 2.9 GHz of Bandwidth to the Home
- Single Fiber Broadband Transmission: CATV, HDTV/DBS and Data Services
- Independent AGC for CATV and DBS
- Serve Thousands of Subscribers with a Single Transmitter

EDFA - Erbium Doped Fiber Amplifier

- CATV & DBS Field Proven Low Noise Figure
- +14 to +30 dBm Total Optical Power Output
- Choice of Output Configurations
- LED & LCD Front Panel Status Displays
- 110-220 VAC or Optional -48 VDC Power Supply
- Monitor and Control
  - – Foxcom 810 Series Transmitter SNMP
  - – Standard RS-232 Port

FTTH HONU

- DBS, CATV plus Terrestrial TV over a Single Fiber into the Home
- Two L-Band Polarities over a Single Fiber
- Cost Effective

FOXCOM

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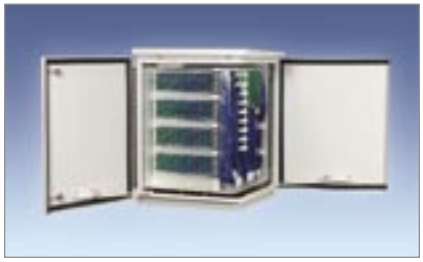

Future Access™ FDH-100 Fiber Distribution Hub

The Future Access™ Fiber Distribution Hub (FDH) is designed to provide a local convergence point in the Outside Plant environment, housing optical splitters that link feeder cables from the CO to distribution cables serving customer premises. Its compact size and modular-based platform aid in installation efficiency, while keeping initial deployment costs down. This modular approach allows a service provider to incrementally grow the FDH as their take rate increases. Distribution modules are available in 72-port configurations, providing the option of incrementally populating the FDH at the onset of deployment. This results in immediate cost savings to the service provider since distribution and splitter modules can be installed as paying customers take the offered services.

Specifications

	VALUE	
PARAMETER	**72 / 144 / 216 / 288 FIBER**	**360 / 432 FIBER**
Configuration	Pad, Pole, or Post* Mount	Pad, Pole, or Post* Mount
Height (pole mount)	26”	33”
Height (pad mount)	38”	45”
Dimension (W x D)	20” x 20”	20” x 20”
Connector Type	SC-APC	SC-APC
Cable Type	Loose Tube or Ribbon	Loose Tube or Ribbon
Splitter Module Capacity	9 Modules	14 Modules
Parking Lot Capacity	64	128
Color	Standard Electric Ivory	Standard Electric Ivory

Ordering Information

FDH100 Units

PART NUMBER	DESCRIPTION
All models feature: 100 foot preterminated loose tube cable stubs (input/output), SC-APC adapters, ground skirt, no splitters.	
FD000207	FDH100, 72F Pad Mount
FD000204	FDH100, 144F Pad Mount
FD000205	FDH100, 216F Pad Mount
FD000201	FDH100, 288F Pad Mount
FD000202	FDH100, 288F Pole Mount
FD000223	FDH100, 360F Pad Mount
FD000221	FDH100, 432F Pad Mount
FD000222	FDH100, 432F Pole Mount

Accessories

PART NUMBER	DESCRIPTION
FD000097	Additional 12” Mounting Skirt for Pad Mount FDH (All Cabinet Sizes)
FD000158	Hand-hole, Split lid design, 60”L x 36”W x 24”D, HDPE Structural Foam, Stainless Hardware, Green
FD000039	1x32 Future Access Splitter Module, Bend Insensitive Pigtails, Parking Lots, SC-APC connectors
FD000092	2x32 Future Access Splitter Module, Bend Insensitive Pigtails, Parking Lots, SC-APC connectors
FD000160	1x16 Future Access Splitter Module, Bend Insensitive Pigtails, Parking Lots, SC-APC connectors
FD000161	2x16 Future Access Splitter Module, Bend Insensitive Pigtails, Parking Lots, SC-APC connectors
FD000162 Dual	1x16 Future Access Splitter Module, Bend Insensitive Pigtails, Parking Lots, SC-APC connectors

Features

- Modular distribution platform allows for incremental deployment costs and immediate cost savings
- Small Size is unobtrusive in residential deployments
- Enhanced fiber management provides simplified routing and termination of fiber pigtails
- Dual-door entry allows easy access to distribution and fiber management fields
- Flexible pad, pole, and optional post mounting options for deployment in the most convenient location

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Sealed Fiber Optic Splice Closures

The AFL Telecommunications' family of Sealed Fiber Optic Splice Closures is designed to simplify splice management. Quality engineering reduces the installation time, training and complexity associated with fiber splicing in the field. No heat, adhesives, drills or powered equipment for installation or re-entry are required. These durable, easy to install closures will increase productivity, reduce labor expenses and last the life of your plant.

Features

- Supports loose tube, core tube, dielectric and armored cable
- Installation and re-entry using common hand tools
- Fully sealed to protect fiber and splices
- Fully kitted with all parts to install cables
- Designed and tested to Telcordia™ GR-771 requirements
- Rural Utilities Service (RUS) Listed

Specifications

PARAMETER	LG-50-U-0	LG-100-U-0	LG-200-U-0	LG-300-U-0	LG-300XL-U-0
Splice Capacity (Max.) - Single, Mass, Mechanical	24, na, na	36, 144, na	96, 288, 36	384, 1152, 108	864, 2592, na
Number of Splice Trays (Max.) - Single, Mass, Mechanical	1, na, na	3, 3, na	4, 2, 3	12, 8, 8	9, 9, na
Cable Entrance Configuration	In-line / Butt	Butt	Butt	Butt	Butt
Cable Ports	2	5	5	5 (7 using dual port washers)	5 (10 using dual port washers)
Cable Sizes (Max. O.D.)	2 @ 0.60" (splice) 2 @ 1.10" (ground / bond)	5 @ 0.70"	5 @ 0.70"	3 @ 0.80" 2 @ 1.00"	3 @ 1.25" 2 @ 1.35"
Dimensions - (L x D) in. (cm)	14.00 x 4.00 (35.60 x 10.16)	18.25 x 8.75 (46.36 x 22.23)	19.00 x 8.75 (48.26 x 22.23)	28.00 x 10.00 (71.12 x 25.40)	31.00 x 12.00 (78.74 x 30.48)
Weight - lbs. (kg)	3.0 (1.36)	10.5 (4.76)	11.5 (5.23)	14 (6.35)	25 (11.34)

Ordering Information – Standard Configurations

MODEL #	DESCRIPTION	PART #
LG-50-U-0	Inline and Butt Style Closure, 24 fusion splice capable, 2 cable kits for sealing retention, 1 Dual Cable Entry Port Kit, grounding terminal. Includes 2 cable grounding kits (splice tray not included).	FC000034
LG-100-U-0	Dome Closure, 36 Single or 144 mass fusion capable, 5 cable kits for sealing and retention, Grounding Terminal. No cable grounding kits, hanger brackets or splice trays.	FC000001
LG-200-U-0	Dome Closure - 96 Single or 144 mass fusion capable, 5 cable kits for sealing and retention, Grounding Terminal. No cable grounding kits, hanger brackets or splice trays.	FC000002
LG-300-U-0	Dome Closure, 384 Single or 1152 Mass fusion capable, 5 cable kits for sealing and retention (single and dual configurations for Express ports), Grounding Terminal. No cable grounding kits, hanger brackets or splice trays.	FC000009
LG-300XL-U-0	Dome Closure, 864 single or 1296 mass fusion capable, 5 cable kits for sealing and retention (single and dual cable configurations), Grounding Terminal. No cable grounding kits, hanger brackets or splice trays.	FC000010
LL-2450	Splice Tray for the LG-100, Stores 12 single fusion splices, base, cover, (2) six position splice holders, tie-wraps	91957-00
LL-4850	Splice Tray for the LG-100, Stores 8 mass fusion sleeves, base, cover, (2) four position ribbon sleeve holders, tie-wraps	91958-00
LL-1248	Splice Tray for the LG-100, Stores 12 single fusion splices or 4 mass fusion splices / 48 fibers	911221-00-00
LL-1200	Mechanical Splice Tray - Stores 12 Mechanical splices	91712-05
LL-2400	Single Fusion Splice Tray -Stores 24 Single fused fibers	91710-06
LL-2448	Universal Splice Tray - Stores 24 Single fusion or 4 Mass fusion sleeves / 48 fibers	911289-00-02
LL-4800	Mass Fusion Splice Tray -Stores 4 Mass fusion sleeves / 48 fibers	91711-07
LL-4848	Mass Fusion Splice Tray - Stores 12 Mass fusion sleeves	911437-00-02
LL-4896	Universal High Density Splice Tray for the LG-300XL - Stores 96 Single fusion splices or 24 Mass fusion sleeves / 288 Fibers	911676-00-02

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Expandable to Support Various Cable Diameters

Ease of Installation (no tapes, washers, or glue)

Multiple Layers of Sealing Protection

Peel and Seal Grommet Systems™ for Sealed Fiber Optic Closures

AFL Telecommunications in conjunction with Mar-Don Corporation has developed a new cable sealing grommet technology for the AFL Sealed Fiber Optic Closures called "Peel and Seal". This improved sealing technology utilitizes MULTICENTRIC® Grommets that do away with time consuming tasks such as installing washers and messy sealing tapes for cable entry. MULTICENTRIC® Grommets are designed to accept a wide range of cable diameters, eliminating the need to stock a variety of diameter-specific grommet kits.

Conversion kits for the standard LG100, LG200, LG300 and LG300XL closures allow this exciting new grommet technology to be used without changing out the existing closure.

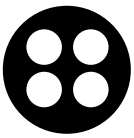
New closure models, LG-150, LG-250, LG-350 and LG-350XL, are equipped from the factory with the "Peel and Seal" grommet system.

Features

- All Peel and Seal Grommet Systems support loose tube, core tube, dielectric and armored cable designs
- Installation and re-entry using common hand tools
- Accepts a wide range of cable diameters
- Fast and easy to install
- Fits existing AFL sealed closures
- Fully sealed to protect fiber and splices ensuring longevity
- Full conversion kits and dual cable entry port kits
- Designed and tested to Telcordia™ GR-771 & RUS 515 closure requirements

Single Axis

Dual Axis



Quad Axis

Ordering information

SEALED CLOSURE FULL CONVERSION KITS (SINGLE AXIS CABLE ENTRY)

PART #	DESCRIPTION
FC000322	Grommet Kit for LG100 or LG200. (Single cable axis) Cable Diameter Range 0.25" min. to 0.65" max Kit includes sealing grommets, cable retention grommets, band mic and lubricant for five ports
FC000333	Grommet Kit for LG300. (Single cable axis) Express Cable Port Diameter Range 0.38" min. to 1.00" max Drop Cable Port Diameter Range 0.25" min. to 0.83" max Kit includes sealing grommets, cable retention grommets, band mic and lubricant for five ports
FC000001-PS	LG-150 Sealed Closure with new Peel & Seal Grommet Kit
FC000002-PS	LG-250 Sealed Closure with new Peel & Seal Grommet Kit
FC000009-PS	LG-350 Sealed Closure with new Peel & Seal Grommet Kit

Please contact your personal Customer Service Rep for further details and pricing.

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LLAS-200-12SC and LLAS-300-24SC

Fiber Optic Terminal Adapters for Sealed Fiber Optic Splice Closures

The LightLink Access Solution (LLAS) Terminal Adaptors provide the interconnect and/or demarcation of optical fibers for; Fiber-to-the-Node (FTTN), Fiber-to-the-Home (FTTH), Fiber-to-the-Premise (FTTP), and Fiber-to-the-Curb (FTTC) applications. The adaptor plates are designed to be used in conjunction with AFL Sealed Fiber Optic Splice Closures and convert the standard closure design into an FTTX or demarcation type fiber optic splice closure. The adaptor plates provide mounting positions ranging from six (6) to twenty-four (24) SC-style bulkheads (depending on the model). The interconnection and routing of 900µm SC pigtails with pre-connectorized SC drop cables is managed through routing rings on the terminal adaptor. Three versions of the terminal adaptors are available and are matched to the LG100-U-0, LG200-U-0 and LG300-U-0 sealed fiber optic splice closures.

Ordering Information

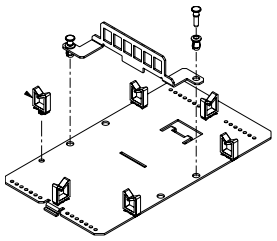
MODEL NUMBER	PART NUMBER	DESCRIPTION
LLAS-100-6SC	FC000100	Terminal Adaptor for LG-100 Sealed Splice Closure.
LLAS-200-12SC	FC000068	Terminal Adaptor for LG-200 Sealed Splice Closure.
LLAS-300-24SC	FC000069	Terminal Adaptor for LG-300 Sealed Splice Closure.

Blank bulkhead adaptor plate and routing rings are included.
SC bulkheads, SC pigtails (900µm) and SC pre-connectorized drop cable may be ordered separately.

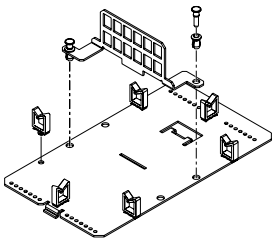
Accessories Ordering

PART NUMBER	DESCRIPTION
C058475	(1) Small Flange SC/UPC Bulkhead adaptor (Blue)
C147880	(1) Small Flange SC/APC Bulkhead adaptor (Green)
C146507-0001	(1) Pigtail - SC/UPC Connector with (1) meter 900um fiber
C203278-0001	(1) Pigtail - SC/UPC Connector with (1) meter 900um fiber

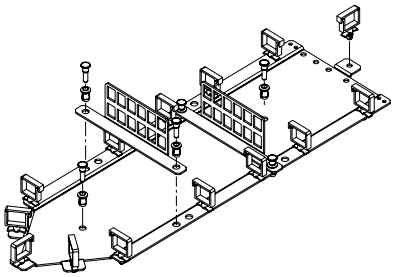
LLAS-100-6SC



LLAS-200-12SC



LLAS-300-24SC



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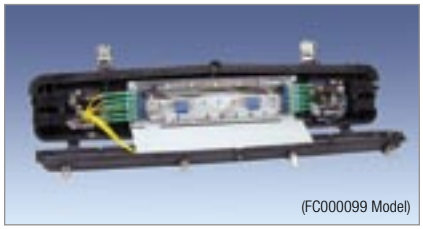
(FC000099 Model)

LG-420 FTTx Aerial Weathertight Fiber Optic Splice Closures

The AFL LG-420 FTTx Aerial Weathertight Fiber Optic Splice Closures are designed to allow for Taut Sheath (no slack) splicing in aerial applications such as FTTx access networks. The LG-420 FTTx provide access for 4 to 12 subscriber drops.

Features

- Four individual, self-sizing grommeted cable ports:
  - 2 express ports
  - 2 drop ports
- Up to twelve FTTx drop connections
- Special multi-drop grommet & cable retention
- Special lock-out interior enclosure
- (2) blank adaptor plates (with 6 adaptor slots on each)
- Taut Sheath splice module accommodates up to twelve fusion or mechanical splices and supports storage of up to twelve optical connector adapters
- Patented tongue-in-groove cover seal system
- Cable retention clamps provide pullout rating required by Telcordia™
- Engineered thermoplastic to meet Telcordia™ aerial and UV resistance requirements
- Protective channel allowing taut fibers or bundles to pass through the closure
- Rural Utilities Service (RUS) Listed

Specifications

PARAMETER	VALUE
Splice Capacity (Max.) - Single, Mass	12, 48
Number of Splice Trays (Max.) - Single, Mass	na, na
Cable Entrance Configuration	In-line (taut sheath)
Cable Ports	2 - express 2- drop
Cable Sizes (Max. O.D. – Min. O.D.)	2 @ 0.3-0.77" express 12 @ 0.22-0.38" drop
Dimensions - (L x D) in. (cm)	36.00 x 8.00 x 4.00 (91.44 x 20.32 x 10.16)
Weight - lbs. (kg)	8.5 (3.86)

Ordering Information

DESCRIPTION	MODEL #	PART #
Aerial Weathertight Universal Taut Sheath Splice Closure - Includes: (2) 6-fiber single fusion splice organizers, (2) Blank 6 adapter bulkeads (SC style), (2) grounding terminals and 4 individual self sealing ports. Connects up to (12) FTTx subscriber drop either connectorized or direct spliced. Special interior lock out protective enclosure. Does not include cable grounding kits.	LG-420-U-FTTx	FC000099
Aerial Weathertight Universal Taut Sheath Splice Closure - Includes: (2) 6-fiber single fusion splice or (1) ribbon splice organizers, (2) blank 6 adaptor bulkheads (SC style), (2) grounding terminals and (4) individual self-sealing ports. Connect up to (12) FTTx subscriber drops either connectorized or direct spliced. Standard taut sheath plate. Does not include cable grounding kits.	LG-420-FTTx	FC000206
Cable Grounding Harness - Includes; (4) Harness 8" #6 AWG	CGH-4	FC000024
Grommet Replacement Kit, Kit - Includes; (10) Standard (single port) Grommets for the LG-400 Series Closures	LG-400-S	911496-00-00
Closure Extension Kit - Used to join multiple closures for extended sheath openings required to repair cable sheath and damaged fibers	LG-400/LG-500	911499-00-00
Extended Aerial Hangar Kit	LG-400/LG-500	911497-00-00

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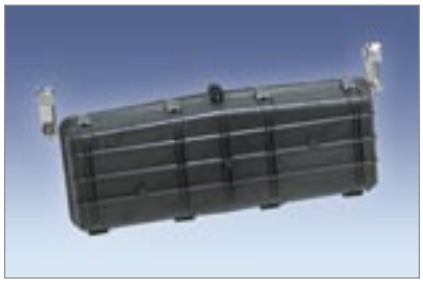

LG-600 FTTx Aerial Weathertight Fiber Optic Splice Closure

The AFL LG-600 FTTx Aerial Weathertight Fiber Optic Splice Closure is designed for express slack loop fiber access splicing in aerial applications where up to 24 customer fiber drops is required.

Specifications

PARAMETER	VALUE
Splice Capacity (Max.) - Single, Mass, Mechanical	24, 48, 24
Number of Splice Trays (Max.) - Single, Mass, Mechanical	2, 2, 2
Cable Entrance Configuration	In-line, Butt
Cable Ports	6
Cable Sizes (Max. O.D. – Min. O.D.)	2 @ 0.4-0.87" 24 @ 0.23-0.48"
Dimensions - (L x D) in. (cm)	27.00 x 11.25 x 7.50 (68.58 x 28.58 x 19.05)
Weight - lbs. (kg)	18 (8.16)

Features

- Six individual, self-sizing grommeted cable ports; 2 express ports, 4 drop ports
- Up to 24 FTTx drops
- Special multi-drop grommets and cable retention
- Integrated aerial splicing work tray
- Splice trays available for single, mass or mechanical splicing
- Patented tongue-in-groove cover seal system
- Integrated grounding clamp through aerial hangers
- Cable retention clamps provide pullout rating required by Telcordia™
- Engineered thermoplastic to meet Telcordia™ aerial and UV resistance requirements
- Rural Utilities Service (RUS) Listed

Ordering Information

DESCRIPTION	MODEL #	PART #
Aerial Weathertight Universal High Capacity FTTx Splice Closure - Includes; (6) cable retention kits, (2) gounding terminals, (6) self sealing ports and standard length aerial hangars. Does not include splice trays or cable grounding kits.	LG-600-FTTX	FC000291
Mechanical Splice Tray - Stores 12 Mechanical splices (maximum of 8 trays in LG-600)	LL-1200	91712-05
Single Fusion Splice Tray - Stores 12 Single fused fibers	LL-2450	91957-00
Universal Splice Tray - Stores 12 Single Fusion or 4 Mass fusion sleeves/48 fibers	LL-1248	911221-00-00
Mass Fusion Splice Tray - Stores 4 Mass fusion Sleeves/48 fibers)	LL-4850	91958-00-00
Cable Grounding Harness - Includes; (4) Harness 8" #6 AWG	CGH-4	FC000024
Dual Grommet Expansion Kit - Includes; (2) Dual Grommets, (1) CSM retention clamp, cable retention clamp and cable spacer	LG-600-DCEK	911406-00-00
Extended Offset Aerial Hanger Kit	LG-600	91990-00
Single Cable Entry Grommet Kit	SEG-600	FC000356
Multi-drop Cable Entry Kit - Allows six cable entries 0.23-0.48"	MDG-600	FC000352

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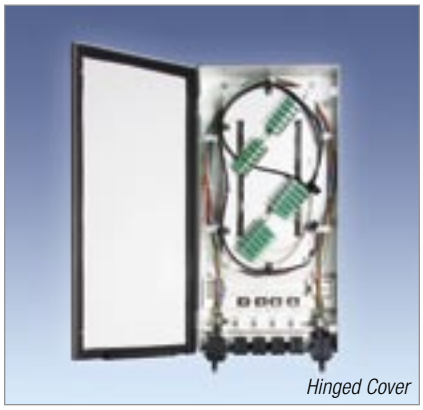
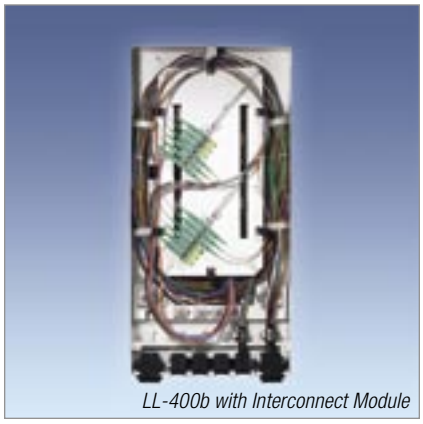


Hinged Cover



LL-400b with Interconnect Module

LightLink™ LL-400b
Optical Splicing and Distribution Enclosure

The LL-400b Fiber Optic Splicing and Distribution Enclosure provides for organizing, splicing, and interconnecting fibers in FTTx, broadband, distribution, and building entrance applications. Each LL-400b enclosure features a scratch resistant powder coated aluminum base and a fully gasketed cover. A unique self-sizing grommet design allows for express and preterminated cable installation. The LL-400b is a butt-style enclosure equipped with 6 independent cable entry/exit grommets, used for outdoor pedestal or indoor building entrance and riser splicing applications. The unit supports a maximum storage and splicing capacity of up to 240 single or 288 mass-fused fibers.

When installed into an LL-400b, the Inteconnect Module supports the interconnection of up to 24 SC optical bulkheads. It is used in outdoor pedestals or building mounted LL-400b enclosures where interconnection is required.

Features

- Independent cable strain relief system
- Cable entry/exit grommet seals
- Fiber routing system
- Splice tray support system
- Supports optional interconnect modules
- 240 single fusion splices
- 288 mass fusion splices

Specifications

PARAMETER	VALUE
Material	Chassis – aluminum
Coatings	Electrostatically applied, powder coat
Color	Antique white
Dimensions (H x W x D) in. (cm)	22.75 x 11.00 x 4.0 (57.79 x 27.94 x 10.16)
Weight lbs. (kg)	6.5 (2.95)

Ordering Information

DESCRIPTION	PART #
LL-400b	91894-04
LL-400b In 1212 Pedestal	FM-000636

Ordering – Accessories

DESCRIPTION	PART #
LL-410 Interconnect Module, Enclosure with 4 SC Blank Adapter Panels	911410-00-01
LL-400b Pedestal Spacer Mount Kit	911740-00-00
LL-2448 Universal Splice Tray	911289-00-02
LL-2400 Single Fusion Splice Tray	91710-06

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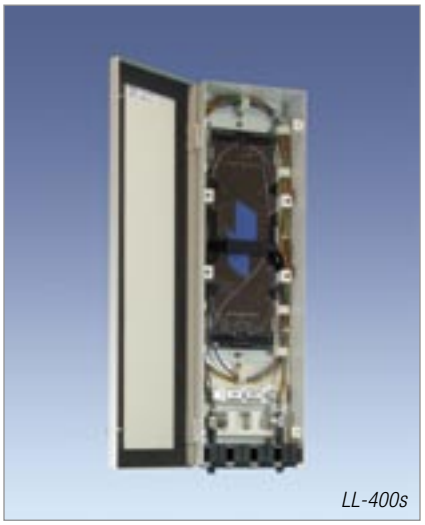

LL-400s

LL-400s installed in pedestal

LightLink™ LL-400s
Optical Splicing and Distribution Enclosure

The LL-400s Fiber Optic Splicing and Distribution Enclosure provides for organizing, splicing, and interconnecting fibers in FTTx, broadband, distribution, and building entrance applications. Each LL-400s enclosure features a scratch resistant powder coated aluminum base and a fully gasketed cover. A unique self-sizing grommet design allows for express and preterminated cable installation. The LL-400s is a butt-style enclosure equipped with four independent cable entry/exit grommets, used for outdoor pedestal or indoor building entrance and riser splicing applications. The unit supports a maximum storage and splicing capacity of up to 72 single or 144 mass-fused fibers.

Features

- Independent cable strain relief system
- Cable entry/exit grommet seals
- Removable Hinged Front Cover
- Fiber routing system
- Splice tray support system
- 72 single fusion splices
- 144 mass fusion splices

Specifications

PARAMETER	VALUE
Material	Chassis – aluminum
Coatings	Electrostatically applied, powder coat
Color	Antique white
Dimensions (H x W x D) in. (cm)	21.63 x 6.63 x 3.25 (54.94 x 16.84 x 8.26)
Weight lbs. (kg)	4.74 (1.77)

Ordering Information

DESCRIPTION	PART #
LL-400s	FM000639
LL-400s with (2) multi-drop grommets	FM000618
LL-400s in 1010 Pedestal	FM000777

Accessories

DESCRIPTION	PART #
LL-400b Pedestal Spacer Mount Kit	911740-00-00
LL-4848 Mass Fusion Splice Tray	911437-00-02
LL-2448 Universal Splice Tray	911289-00-02
LL-2400 Single Fusion Splice Tray	91710-06

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LL-500

LL-500 with LL-2450 installed

LightLink™ LL-500
Optical Splicing and Distribution Enclosure

The LL-500 Optic Splicing and Distribution Enclosure provides for organizing, splicing, and interconnecting fibers in broadband, distribution, and building entrance applications. The enclosure features a scratch and corrosion resistant powder paint coating base and a fully gasketed hinged cover. A unique self-sizing grommet design allows for express and pre-terminated cable installation. The LL-500 supports up to five LL-2450 splice trays or three LL-4850, LL-2400 or LL-2448 splice trays (not included in base unit) and an optional 12 fiber, hinged Interconnect Module.

Features

- NEMA 3 rated enclosure
- Independent cable strain relief system
- Cable entry/exit grommet seals
- Fiber routing system
- Splice tray support system
- Hinged cover
- Supports optional Interconnect Modules
- Interconnect Module supports up to 12 SC bulkhead adapters
- Accomodates “Field Couplers” with optional Splitter housing Attachment (P/N 91944-00)
- Secured with a standard padlock
- 4 cable ports with standard grommets
- 8 cable ports with optional expansion kits

Specifications

PARAMETER	VALUE
Material	Steel
Coatings	Electrostatically applied, powder coat
Color	Antique white
Dimensions (H x W x D) in. (cm)	17.5 x 9.0 x 4.0 (44.45 x 22.86 x 10.16)
Weight lbs. (kg)	6.5 (2.95)

Ordering Information

DESCRIPTION	PART #
LL-500-U-0	FM000326
LL-500 Interconnect Kit with SC UPC adapters	FM000385
LL-500 Interconnect Kit with SC APC adapters	FM000407
LL-500 Interconnect Kit without adapters	FM000408

Accessories

DESCRIPTION	PART #
LL-2450 Single Fusion Splice Tray (stores 12 single fusion splices)	91957-00
LL-4850 Mass Fusion Splice Tray (stores 8 mass fusion sleeves - 96 fibers)	91958-00
Dual Grommet Cable Expansion Kit (2 Grommets)	911386-00-01

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OPN-1224 shown with customer provided cabling, adapter plates and adapters.

LightLink™ OptiNID OPN-1224 Optical Demarcation Closure

The OptiNID-1224 is an optical demarcation closure designed for use in either indoor or outdoor environments. It is capable of housing up to 24 bulkhead adapters in two 118 LGX® compatible adapter plates and comes equipped with a splice tray (LL-2425), which holds up to 24 single fusion splices. The OPN-1224 can be either wall or pole-mounted.

Specifications

PARAMETER	VALUES
Dielectric Strength	Minimum 2500 Vrms for 1 minute
High Temperature Storage/Mold Stress °F (°C)	14 days at 159 (70.55)
Temperature Cycling with Humidity °F (°C)	150 day cycling from 40-140 (4.44-60) with 95% RH
Impact Test °F (°C)	-40 (-40), 5*/lbs. on all external surfaces
Drop Test °F (°C)	-40 (-40), 5* (12.7 cm) onto concrete surface 4 times
Rain	24 hours at 10 psi
UV Resistance (Days Exposed)	60 per ASTM-G26-84
Salt Fog (Days Exposed)	60 per ASTM-BLL7-90
Flammability	UL94-5V
Chemical Resistance 30 Days at 100 °F and 95% RH Subject to:	Resists chipping and/or cracking when subject to: house paint, wasp spray, sulfuric acid, kerosene and sodium hydroxide
Material	U.L.® listed flame retardant thermoplastic alloy
Dimensions (H x W x D) in. (cm)	12.25 x 12 x 5.25 (22.80 x 22.80 x 7.60)
Cable Entrances in. (cm) diameter - Output	5 x 0.625 (1.5)
Cable Entrances in. (cm) diameter - Input	2 x 0.75 (1.5), 1 x 0.250 (0.6) (ground wire)
Covers	Standard - molded-in snap finger and “F” termination

Features

- Capacity for up to two 118 LGX® compatible adapter plates
- Weather-resistant thermoplastic alloy
- Self-latching, hinged cover design allows easy access without loose parts
- Self-sealing individual entrance ports prevent water and insects from entering
- Provider override is provided so that technician can override customer lock
- Locations available on front cover for custom logos

Ordering Information

DESCRIPTION			MODEL #	PART #
OptiNID-1224 optioned for up to two 118 LGX® compatible adapter plates. (includes splice tray, does not include adapters plates or adapters)			OPN-1224	DM000183
Blank Filler Panel			C215503	C215507
SINGLE-MODE (CERAMIC)				
SCU	6-pack	simplex	C215602	C215611
SCA	6-pack	simplex	C215638	C215644
STU	6-pack	simplex	C215962	C215971
STU	12-pack	simplex	C223564	C223571
SCU	3-pack	duplex (6 fiber)	C215512	C215521
SCU	6-pack	duplex (12 fiber)	C219604	C220853
LCU	6-pack	duplex (12 fiber)	C215989	C215993
MULTI MODE (METAL)				
SC	6-pack	simplex	C215626	C215633
ST	6-pack	simplex	C215968	C215975
ST	12-pack	simplex	C223567	C223576
SC	3-pack	duplex (6 fiber)	C215536	C215543
SC	6-pack	duplex (12 fiber)	C220435	C219598
LC	6-pack	duplex (12 fiber)	C215998	C216004
MTRJ 6-pack			C216079	C216083

Adapter color: SM = Blue MM=Beige

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FPB-201 Fiber Demarcation Box

AFL has designed a cost effective solution for a protecting the passive demarcation of premise fibers. The FPB-201 is injection molded with an integral fiber retention system allowing for quick installation and a positive lock strain relief for most premise fiber cable. This device allows for the indoor and protected outdoors interconnect of up to 2 standard SC adapters in a protected white plastic enclosure to blend in most premise environments.

Features and Benefits

- Compact size takes up less wall space for installation
- Thin profile prevents accidental damage in congested installations
- Molded inner slack storage area insures minimum bend radius preventing micro bends and unnecessary loss or fiber damage
- No additional tie wraps or clamps needed due to integral positive lock strain relief
- Inner tray retains up to two fusion or mechanical splice sleeves
- Accepts standard SC connectors SCA or SCU
- Protects fiber connection from accidental contamination or movement allowing long term preservation of connection in hostile environments
- Cost effective passive solution protects each connection without driving project over budget
- Key-hole, three screw mounting allows two of three screws to be leveled and pre installed
- Two locations available for splice and connector to reside allows flexible installation and up to two splices if needed
- Removable sliding cover for easy access to complete box in congested locations

Specifications

PARAMETER	VALUE
Dimensions (mm)	7.9” x 4.5”W x 1.2”D (200 × 115 × 30)
Weight (g)	7 oz (200)
Cable count	2 max.
Cable Types	Most premise (floor) cables
Connection Type	Fusion splice, mechanical splice or SC connector

Ordering Information

DESCRIPTION	MODEL #	PART #
Injection molded fiber demarcation box for up to 2 fibers.	FPB-201	DM000108

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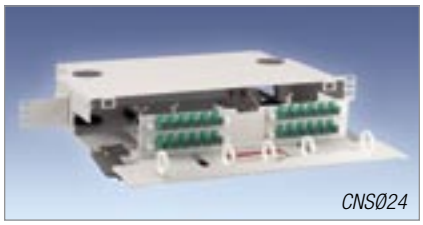
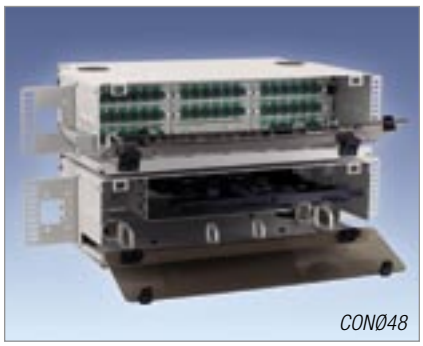

CNSØ24


CONØ48

CNS144

LightLink™ LANSystem™ Patch and Splice Panels

AFL Patch and Splice Panels are rack mountable and designed to accomodate up to 144 fiber terminations (standard density) or 288 fiber terminations (high density) and up to 288 single fusion splices using double density splice trays. They provide a compact and versatile method of splicing and connectivity. Standard panels are available in empty, loaded and unloaded versions. Unloaded panels include adapter plates, adapters and splice drawers. Loaded panels also include pigtails (< 3 Meters).

Specifications

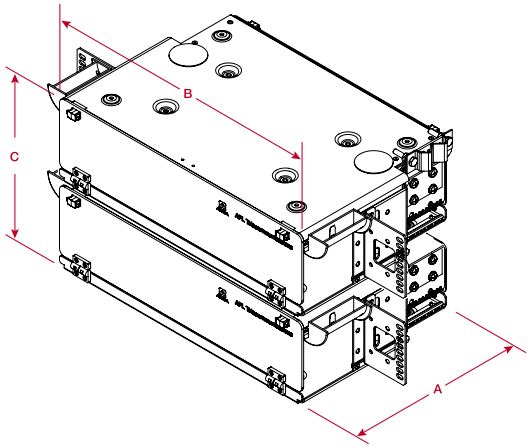
- Telcordia GR-63 NEBS tested
- Aluminum Material per ASTMB209
- Central Office White, Black, Texture Powder Coated
- Universal Mounting Bracket - WECO, EIA
- 19" and 23" rack compatible
- Fiber storage capacity is one meter per spliced fiber (3mm jacket)
- CNS-Ø12 and CNS-Ø24 have an integral splice tray, others use STF-48 splice tray

Applications

- Telecommunication Closets
- Data Centers
- Customer Premise
- Local Area Networks
- Wide Area Networks
- Central Offices
- Hubs
- Cabinets
- Remote Terminals

Dimensions

MODEL	DEPTH (A) (inches)	WIDTH (B) (inches)	HEIGHT (C) (inches)	RACK UNITS	CAPACITY (std/high)	MATERIAL GAUGE
CONØ12P	11	17	1.75	1	12/24	2.03 mm
CONØ24P	11	17	3.50	2	24/48	
CONØ48P	11	17	10.5	6	48/96	
CONØ72P	11	17	12.25	7	72/144	
CNSØ96P	11	17	12.25	7	96/na	
CNS144P	11	17	14	8	144/na	
CNS144HD	11	17	15.75	9	288/na	



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LightLink™ LANSystem™ Patch and Splice Panels

Ordering Information - Selection of Standard Configurations

(consult customer service for additional configurations)

PART NUMBER	CONFIGURATION
1U PATCH AND SPLICE PANELS	
C215327	CNSØ12P – EMPTY
C215008	CNSØ12P with 12 USC (PB) adapters (2 Six Packs)118 LGX Internal Splice Tray
FM000214	CNSØ12P with 6 UDL (dup) adapters (2 Three Packs) 118 LGX Internal Splice Tray (Blue)
1U HIGH DENSITY PATCH AND SPLICE PANELS	
C215057	CNSØ24HD with 12 UDL (dup) adapters (2 Six Packs)118 LGX Internal Splice Tray
2U PATCH AND SPLICE PANELS	
C215158	CNSØ24P – EMPTY
C215086	CNSØ24P with 24 USC (PB) adapters (4 Six Packs) 118 LGX Internal Splice tray
FM000224	CNSØ24P with 12 UDL (dup) adapters (4 three Packs)118 LGX Internal Splice tray
2U HIGH DENSITY PATCH AND SPLICE PANELS	
C215134	CNSØ48HD with 24 UDL (dup) adapters (4 Six Packs) 118 LGX Internal Splice tray
6U PATCH AND SPLICE PANELS (1 - 3U PATCH, 1 - 3U SPLICE)	
C211534	CNSØ48P – EMPTY
C211543	CNSØ48P with 48 USC (PB) adapters (8 Six Packs) Splice Drawer (2 - 48 position) 118 LGX
FM000234	CNSØ48P with 24 UDL (dup) adapters (8 Three Packs) Splice Drawer (2 - 48 position) 118 LGX
6U HIGH DENSITY PATCH AND SPLICE PANELS	
C211594	CNSØ96HD with 48 UDL (dup) adapters (8 Six Packs) Splice Drawer (2 - 48 position) 118 LGX
7U PATCH AND SPLICE PANELS (1 - 4U PATCH, 1 - 3U SPLICE)	
C211615	CNSØ72P – EMPTY 118 LGX
C210967	CNSØ72/96P – EMPTY 130 LGX
C211624	CNSØ72P with 72 USC (PB) adapters (12 Six Packs) Splice Drawers (3 - 48 position) 118 LGX
FM000244	CNSØ72P with 36 UDL (dup) adapters (12 Three Packs) Splice Drawers (3 - 48 position) 118 LGX
C210985	CNSØ96P with 96 USC (ZR) adapters (12 Eight Packs) Splice Drawers (2 - 48 position) 130 LGX
7U HIGH DENSITY PATCH AND SPLICE PANELS (1 - 4U PATCH, 1 - 3U SPLICE)	
C211673	CNS144HD with 72 UDL (dup) adapters (12 Six Packs) Splice Drawers (3 - 48 position) 130 LGX
8U PATCH AND SPLICE PANELS (1 - 5U PATCH, 1 - 3U SPLICE)	
C211696	CNS144P – EMPTY
C211705	CNS144P with 144 USC (PB) adapters (12 Twelve Packs) Splice Drawers (3 - 48 position) 170 LGX
FM000258	CNS144P with 72 UDL (dup) adapters (12 Six Packs) Splice Drawers (3 - 48 position) 170 LGX
9U HIGH DENSITY PATCH AND SPLICE PANELS (1 - 5U PATCH, 1 - 4U SPLICE)	
C211756	CNS288HD with 144 UDL (dup) adapters (12 Twelve Packs) Splice Drawers (6 - 48 position) 170 LGX

Accessories

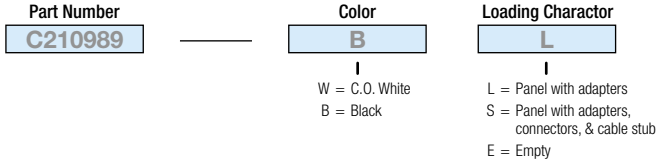
PART NO.	DESCRIPTION
C210850	Cable Clamp (White)
C214522	Cable Clamp (Black)
911442-00-00	STF-48 Telescoping Splice Tray

Connectors/ Adapters Available

TYPE	DESCRIPTION
ASC	Angle Polish SC (ZR) sleeve-SM
ASF	Angle Polish SC Duplex (ZR) sleeve-SM
PSC	Physical Polish SC (PB) sleeve-MM
PSF	Physical Polish SC Duplex (PB) sleeve-MM
USC (PB)	Ultra Polish SC wih (PB) sleeve-SM
USC (ZR)	Ultra Polish SC with (ZR) sleeve-SM
USF	Ultra Polish SC Duplex (ZR) sleeve-SM
PST	Physical Polish ST (PB) sleeve-MM
UST	Ultra Polish ST (ZR) sleeve-SM
AFC	Angle Polish FC (ZR) sleeve-SM
PFC	Physical Polish FC (PB) sleeve-MM
UFC	Ultra Polish FC (ZR) sleeve-SM
ADL	Angle Polish LC Duplex (ZR) sleeve-SM
PDL	Physical Polish LC Duplex (PB) sleeve-MM
PLC	Physical Polish LC (PB) sleeve-MM
UDL (ZR)	Ultra Polish LC Duplex (ZR) sleeve-SM
UDL (PB)	Ultra Polish LC Duplex (PB) sleeve-SM
ULC	Ultra Polish LC (ZR) sleeve-SM

Ordering Information

Select the seven digit part number of the panel you need, specify black or C.O. white, and choose the loading character desired.



Example: Order number for a CNSØ96 panel Black in color, loaded with, master plate, adapter plates, 96 ASC adapters (12 eight packs), splice drawers, pigtails with connectors, hardware, cable clamp.

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CONØ12

CONØ48

CON144

LightLink™ LANSystem™ Fiber Termination Patch Panels

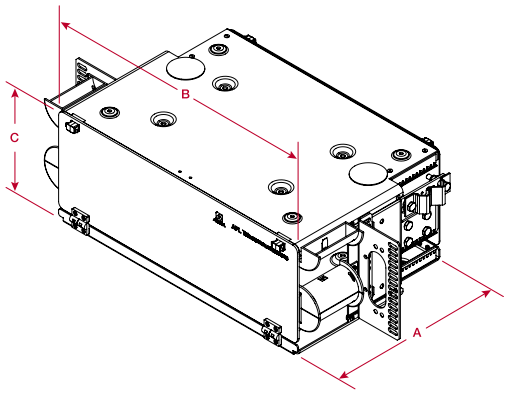
AFL Fiber Termination Patch Panels are used where termination and connectivity of up to 144 fibers (standard density) or 288 (high density) is desired. The panels are designed to accommodate LGX® (170 mm) compatible adapter plates. Standard panels are available in empty, loaded and preterminated versions. Loaded panels include adapters and adapter plates. Preterminated panels include adapters, adapter plates and standard OFNR cable. The fiber stub for preterminated panels exits the right rear of the unit facing up.

Features

- Fits comfortably into new and existing interconnect, cross-connect, customer premise, and co-location environments
- Various connector styles & types available
- Compatible with industry standard equipment frames
- LGX® compatible master plate (170mm)
- Modular design
- Provides maximum protection of optical components
- Available with I/O loose tube stub

Dimensions

MODEL	DEPTH (A) (inches)	WIDTH (B) (inches)	HEIGHT (C) (inches)	RACK UNITS	CAPACITY (std/high)	UNLOADED WEIGHT	MATERIAL GAUGE
CONØ12P	11	17	1.75	1	12/24	4.0 lbs.	2.03 mm
CONØ24P	11	17	3.50	2	24/48	6.2 lbs.	2.03 mm
CONØ48P	11	17	5.25	3	48/96	8.4 lbs.	2.03 mm
CONØ72P	11	17	7.00	4	72/144	9.0 lbs.	2.03 mm
CONØ96P	11	17	7.00	4	96/na	9.0 lbs.	2.03 mm
CON144P	11	17	8.75	5	144/288	9.0 lbs.	2.03 mm



Applications

- Telecommunication Closets
- Data Centers
- Customer Premise
- Local Area Networks
- Wide Area Networks
- Central Offices
- Hubs
- Cabinets
- Remote Terminals

Specifications

- Telcordia GR-63 NEBS Tested
- Aluminum Material per ASTMB209, Standard Front Cover Lexan
- Central Office White or Black, Textured Powder Coat Paint
- Universal Mounting Bracket WECO, EIA
- 19”and 23” Rack Compatable

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LightLink™ LANSystem™ Fiber Termination Patch Panels

Ordering Information - Selection of Standard Configurations

(consult customer service for additional configurations)

PART NUMBER	CONFIGURATION
1 RU PATCH PANELS	
C215327	CNS012P – EMPTY
C211133	CON012P with 12 USC (PB) adapters (2 Six Packs) 118 LGX (Blue)
FM000161	CON012P with 6 UDL (dup) adapters (2 Three Packs) 118 LGX (Blue)
1 RU HIGH DENSITY PATCH PANELS	
C211183	CON024HD with 12 UDL (dup) adapters (2 Six Packs) 118 LGX - 24 Fibers
2 RU PATCH PANELS	
C215158	CNS024P – EMPTY
C211219	CON024P with 24 USC (PB) adapters (4 Six Packs) 118 LGX (Blue)
FM000171	CON024P with12 UDL (dup) adapters (4 Three Packs) 118 LGX (Blue)
2 RU HIGH DENSITY PATCH PANELS	
C211270	CON048HD with 24 UDL (dup) adapters (4 Six Packs) 118 LGX - 48 Fibers
3 RU PATCH PATCH PANELS	
C211291	CON048P – EMPTY
C211300	CON048P with 48 USC (PB) adapters (8 Six Packs) 118 LGX (Blue)
FM000181	CON048P with 24 UDL (dup) adapters (8 Three Packs) 118 LGX (Blue)
3 RU HIGH DENSITY PATCH PANELS	
C211349	CON096HD with 48 UDL (dup) adapters (8 Six Packs) 118 LGX - 96 Fibers
4 RU PATCH PANELS	
C211372	CON072P – EMPTY 118 LGX
FM000344	CON072/96P – EMPTY 130 LGX
C211381	CON072P with 72 USC (PB) adapters (12 Six Packs) 118 LGX (Blue)
FM000191	CON072P with 36 UDL (dup) adapters (12 Three Packs) 118 LGX (Blue)
FM000202	CON096P with 96 USC (PB) adapters (12 Eight Packs) 4U Housing 130 LGX
4 RU HIGH DENSITY PATCH PANELS	
C211432	CON144HD with 72 UDL (dup) adapters (12 Six Packs) 130 LGX - 144 Fibers
5 RU PATCH PANELS	
C211453	CON144P – EMPTY 170 LGX
C211462	CON144P with 144 USC (PB) adapters (12 Twelve Packs) 170 LGX (Blue)
FM000206	CON144P with 72 UDL (dup) adapters (12 Six Packs) 170 LGX (Blue)
5 RU HIGH DENSITY PATCH PANELS (USES TWO 144 STUBS)	
C211511	CON288HD with 144 UDL (dup) adapters (12 Twelve Packs) 170 LGX - 288 Fibers

Accessories

DESCRIPTION	PART NUMBER
Cable Clamp (Black)	C214522
Cable Clamp (White)	C210850

Connectors/ Adapters Available

TYPE	DESCRIPTION
ASC	Angle Polish SC (ZR) sleeve-SM
ASF	Angle Polish SC Duplex (ZR) sleeve-SM
PSC	Physical Polish SC (PB) sleeve-MM
PSF	Physical Polish SC Duplex (PB) sleeve-MM
USC (PB)	Ultra Polish SC wih (PB) sleeve-SM
USC (ZR)	Ultra Polish SC with (ZR) sleeve-SM
USF	Ultra Polish SC Duplex (ZR) sleeve-SM
PST	Physical Polish ST (PB) sleeve-MM
UST	Ultra Polish ST (ZR) sleeve-SM
AFC	Angle Polish FC (ZR) sleeve-SM
PFC	Physical Polish FC (PB) sleeve-MM
UFC	Ultra Polish FC (ZR) sleeve-SM
ADL	Angle Polish LC Duplex (ZR) sleeve-SM
PDL	Physical Polish LC Duplex (PB) sleeve-MM
PLC	Physical Polish LC (PB) sleeve-MM
UDL (ZR)	Ultra Polish LC Duplex (ZR) sleeve-SM
UDL (PB)	Ultra Polish LC Duplex (PB) sleeve-SM
ULC	Ultra Polish LC (ZR) sleeve-SM

Ordering Information

Select the seven digit part number of the panel you need, specify black or C.O. white, and choose the loading character desired. When ordering stubbed (S), enter the cable stub length required in meters.

Part Number		Color	Loading Charactor		Cable Stub Length (M)
C211462	—	B	S	—	0010
		W = C.O. White B = Black	L = Panel with adapters S = Panel with adapters, connectors, & cable stub R = Indoor/outdoor loose tube stub E = Empty		0002 = 2 meters 0004 = 4 meters etc.

Example: Order number for a 5 RU panel Black in color, loaded with 144 USC adapters (12 twelve packs), connectors and a cable stub 10 meters in length.

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LightLink™ Customer Premise System Fiber Termination Patch Panels

The AFL CPS Termination Patch Panel series provides a compact and versatile method of splicing and connecting up to 48 fibers. The panels come with a master plate to accommodate up to eight LGX® compatible adapter plates or modules. Panels are available in loaded and unloaded versions. Unloaded panels include adapter plates, adapters and splice trays. Loaded panels include adapter plates, adapters, splice trays and pigtails.

Features

- Fits comfortably into new and existing interconnect, cross-connect and co-location environments
- Various connectors available
- LGX® compatible master plate
- Modular design
- Provides maximum protection of optical components
- Dual doors with separate locking options for flexibility and security
- UL Listed #8K26 RUS Approved
- Solid Steel Construction
- Central Office White or Black Powder Coat
- Rack mountable with optional kit
- Top or bottom cable entry

Applications

- Co-Location/Customer Premise
- Remote Terminals
- Hubs/OTN sites
- Telecommunication Closets

Specifications

MODEL	DEPTH (inches)	WIDTH (inches)	HEIGHT (inches)	FIBER CAPACITY	UNLOADED WEIGHT	MATERIAL GAUGE
CPS12	3.00	14.00	11.25	12	7.4 lbs.	18
CPS24	3.00	17.50	15.50	24	10.5 lbs.	18
CPS48	6.00	17.50	15.50	48	16.3 lbs.	18

Connector/Adapter Key

TYPE	DESCRIPTION
ASC	Angle Polish SC (ZR) sleeve-SM
ASF	Angle Polish SC Duplex (ZR) sleeve-SM
PSC	Physical Polish SC (PB) sleeve-MM
PSF	Physical Polish SC Duplex (PB) sleeve-MM
USC (PB)	Ultra Polish SC wih (PB) sleeve-SM
USC (ZR)	Ultra Polish SC with (ZR) sleeve-SM
USF	Ultra Polish SC Duplex (ZR) sleeve-SM
PST	Physical Polish ST (PB) sleeve-MM
UST	Ultra Polish ST (ZR) sleeve-SM
AFC	Angle Polish FC (ZR) sleeve-SM
PFC	Physical Polish FC (PB) sleeve-MM
UFC	Ultra Polish FC (ZR) sleeve-SM
ADL	Angle Polish LC Duplex (ZR) sleeve-SM
PDL	Physical Polish LC Duplex (PB) sleeve-MM
PLC	Physical Polish LC (PB) sleeve-MM
UDL (ZR)	Ultra Polish LC Duplex (ZR) sleeve-SM
UDL (PB)	Ultra Polish LC Duplex (PB) sleeve-SM
ULC	Ultra Polish LC (ZR) sleeve-SM

Ordering Information – Standard Configurations

PART NUMBER	DESCRIPTION	COLOR	SPLICE TRAY
C215233	CPS012L - Empty	C.O. White	1-12 position
C211804	CPS012L w/12 UST Adapters (2 Six Packs)		1-12 position
C214459	CPS024L - Empty		2-12 position
C211831	CPS024L w/24 UST Adapters (4 Six Packs)		2-12 position
C214463	CPS048L - Empty		2-24 position
C211858	CPS048L w/48 UST Adapters (8 Six Packs)		2-24 position
C219449	CPS012P - Empty	Black	1-12 position
C223387	CPS012P w/12 USF (dup) Adapters (2 Six Packs)		1-12 position
C219454	CPS024P - Empty		2-12 position
C223405	CPS024P w/24 USF (dup) Adapters (4 Six Packs)		2-12 position
C219460	CPS048P - Empty		2-24 position
C223427	CPS048P w/48 ASC Adapters (8 Six Packs)		2-24 position

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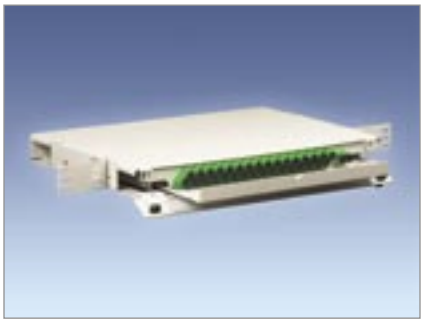

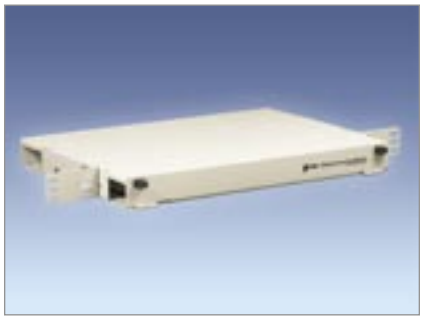

Optical Splitter Shelf

The LightLink™ LanSystem™ Optical Splitter Shelf provides a convenient in-rack solution to combine/split optical signals in a passive optical network. The shelf is comprised of a Planar Lightwave Circuit allowing a signal to be split into 32 channels in a 1U rack-mountable housing. The 2x32 option provides a filter WDM concatenated to a Planar Lightwave Circuit, which allows 1310/1490/1550nm signal management evenly across 32 channels.

Features

- Telcordia GR-63 NEBS tested housing
- Aluminum Material per ASTMB209
- Universal Mounting Bracket WECO, EIA
- 19" and 23" Rack Mountable
- Rugged construction, ensuring environmental, mechanical, and optical integrity
- WDM and PLC fully compliant to Telcordia GR-1209 and GR-1221
- Low Excess loss
- Low Polarization Dependent Loss

Applications

- PON-FTTX Networks
- CATV links
- DWDM & CWDM systems
- Wide area networks
- Outside plant requirements

Specifications

PARAMETER	1x32	2x32	
Insertion Loss	17.5 - 18.5dB	17.5 - 19dB	
Uniformity	1.8dB Typical	1.8dB Typical	
PDL	<0.45dB	<0.45dB	
Return Loss	<55dB	<40dB	
Directivity	<55dB	<50dB	
Fiber Type	SMF-28e 250µm	SMF-28e 250µm	
Operating Temp	-40°C to +85°C	-40°C to +70°C	
Storage Temp	-40°C to +85°C	-40°C to +85°C	
Operating Bandwidth	NA	1550nm Band - Port 1 (Pass)	1550 - 1560nm
		1310+1490nm - Port 2 (Reflect)	1260-1360nm & 1480-1500nm

Ordering Information

PART NUMBER	DESCRIPTION
FM000775	1x32 Optical Splitter Shelf, ASC inputs/outputs, 1U, textured White
FM000662	2x32 Optical Splitter Shelf, ASC inputs/outputs, 1U, textured White

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Wideband Couplers

The dual window Wideband Couplers (WBC) split or couple optical power in two wavelength regions while maintaining a very broad operating bandwidth. Split and coupling ratios are available from 5% to 50%. WBCs are widely considered one of the most cost-effective solutions to optical power management. The WBC is an all-fiber device, based on AFL Telecommunications' fused biconic technology, and is designed and manufactured to meet Military and Telcordia requirements.

Features

- Dual window wideband operation
- Low insertion loss over entire bandwidth and temperature (typical IL change <±0.1dB)
- Ultra-low PDL and temperature sensitivity
- High directivity
- Compact design
- Environmentally stable, over 10 years of proven field reliability
- Standard operating temperature range -40 °C to +85 °C
- Fully tested to Telcordia 1209 and 1221 criteria

Applications

- Telecommunications
- CATV
- LAN
- Monitoring of Networks

Specifications

STANDARD AND PREMIUM GRADES

PARAMETER	VALUE
Operating Wavelength	1310 nm + 50 and 1550 nm + 50
Return Loss	55 dB
Directivity	55 dB
Package Dimension	3.2 mm(dia.) x 55 mm(L)
Operating Temperature	-40° to +85°C
Storage Temperature	-40° to +85°C

Ordering Information

SINGLE-MODE STANDARD GRADE SPECIFICATIONS (MAX. INSERTION LOSS AND MAX. PDL)

RATIO	SPECIFICATIONS (DB)		PART NUMBER
	PRIMARY/SECONDARY PORT	PDL (DB)	
50/50	3.7/3.7	0.17	C198364
55/45	3.3/4.2	0.17	C198358
60/40	2.5/5.6	0.15	C198353
65/35	2.3/5.8	0.15	C198349
67/33	2.1/6.2	0.13	C198904
70/30	1.9/6.5	0.13	C198346
75/25	1.8/7.2	0.13	C198340
80/20	1.5/8.2	0.10	C198335
85/15	1.4/10.0	0.10	C198331
90/10	1.0/12.0	0.10	C198328
95/5	0.7/16.0	0.10	C198322

SINGLE-MODE PREMIUM GRADE SPECIFICATIONS (MAX. INSERTION LOSS AND MAX. PDL)

RATIO	SPECIFICATIONS (DB)		PART NUMBER
	PRIMARY/SECONDARY PORT	PDL (DB)	
50/50	3.6/3.6	0.15	C198364-P
55/45	3.2/4.1	0.15	C198358-P
60/40	2.7/4.7	0.14	C198353-P
65/35	2.3/5.3	0.14	C198349-P
67/33	2.2/5.7	0.14	C198904-P
70/30	2.0/6.0	0.13	C198346-P
75/25	1.8/6.8	0.13	C198340-P
80/20	1.3/7.8	0.10	C198335-P
85/15	1.0/9.2	0.10	C198331-P
90/10	0.8/11.2	0.10	C198328-P
95/5	0.5/14.4	0.10	C198322-P

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Wavelength Division Multiplexer Couplers

The WDM separates or combines wavelengths in the 1310 and 1550nm bands over an ultra-wide bandwidth (+ 20nm) and temperature range while maintaining excellent stability and optical performance. The device, which is fabricated using an advanced fused biconical taper technology, is designed to meet Telcordia 1209 and 1221 requirements.

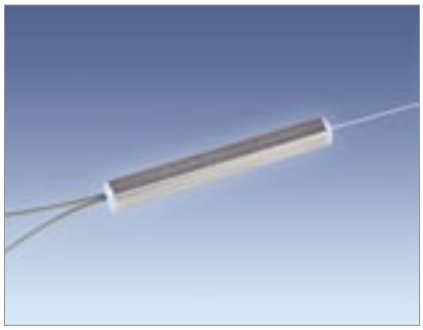
Features

- Low insertion loss
- Ultra-wide bandwidth
- Wide operating temperature
- Low PDL
- Highly stable and reliable
- Epoxy-free optical path

Specifications (Single-Mode Premium)

PARAMETER	VALUE
Model Number	**S004794**
Configuration	1 x 2
Wavelength	1310 / 1550nm
Directivity	<-65dB
Operating Temperature	-40º to +85ºC
Typical Temperature Stability	<0.1dB
Typical Polarization Stability (passband)	<0.1dB
Isolation	20dB

*Isolation of 32dB and higher not available in 63mm L or 69mm L x 3mm OD



Planar Couplers

The Planar Coupler provides the uniform division of an optical signal by having one input port and multiple output ports. Compact packaging and stable optical parameters allow these couplers to be integrated into Telecommunications, Local Area Network (LAN), and Cable Television (CATV) networks.

Features

- Low insertion loss
- Compact design
- Stable optical performance
- Dual Window (1310 & 1550nm)
- Low insertion loss
- Low back reflection
- High output uniformity
- Telecordia GR-1029 and GR-1221 qualified

Specifications

PARAMETER	VALUE			
PART NUMBER	**CM000034**	**CM000033**	**C198299**	**TBA**
Operating Wavelength (Grade)	1260-1360nm and 1480-1580nm (Standard)			
Optical Split Ratio	1 x 4	1 x 8	1 x 16	1 x 32
Maximum Insertion Loss (dB)	7.5	11.0	14.2	17.8
Typical Insertion Loss (dB)	7.3	10.8	13.9	17.5
Maximum Uniformity (dB)	1.0	1.0	1.5	2.0
Typical Uniformity (dB)	0.8	0.8	1.3	1.8
PDL (dB)	<0.3	<0.3	<0.4	<0.4
Return Loss (dB)	>55	>55	>55	>55
Directivity (dB)	>55	>55	>55	>55
Fiber Type	SMF28e 250µm equivalent			
Input/Output Fiber Length	1 meter	1.5 meters	1.5 meters	1.5 meters
Operating Temperature	–40° to +85°C			
Package Dimensions (LxWxH) (mm)	40 x 4 x 4	40 x 4 x 4	40 x 4 x 4	50 x 6.5 x 4

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FTTX Coupler Module

AFL Telecommunications' FTTX Coupler Module is designed to satisfy requirements utilizing 1550nm bandwidths in FTTX applications and is specified for FTTX video installations. The module features a compact footprint with adapter ports consisting of SC/APC adapter outputs.

Specifications

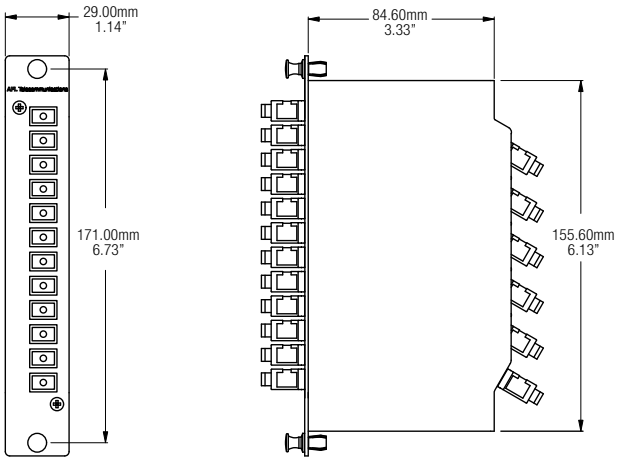
PARAMETER	VALUE
Performance	
Wavelength	1540-1560 nm
Insertion Loss	1550 < 3.9 dB
PDL	<0.2 dB
PMD	< 0.05 ps
Return Loss	> 55 dB
Directivity	> 55 dB
Operating Temperature	-40 to +75 °C
Storage Temperature	-40 to +85 °C
Relative Humidity	0 to 90%
Optical Power	500 mW

Packaging	
Packaging Size	Standard Single Width LGX® Rack Module
Fiber Type	Low-Water-Peak Non-Dispersion Shifted SMF-28e
Connector Type	All ports – SC/APC, Green

Ordering Information

PART NUMBER	DESCRIPTION
CM000072	FTTX Coupler Module

Dimensions



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FTTX WDM Module

The AFL Telecommunications' FTTX WDM Module is designed to satisfy requirements utilizing 1310, 1490 and 1550nm bandwidths in FTTX applications. The module features a compact footprint with adapter ports consisting of SC (UPC or APC) outputs.

Specifications

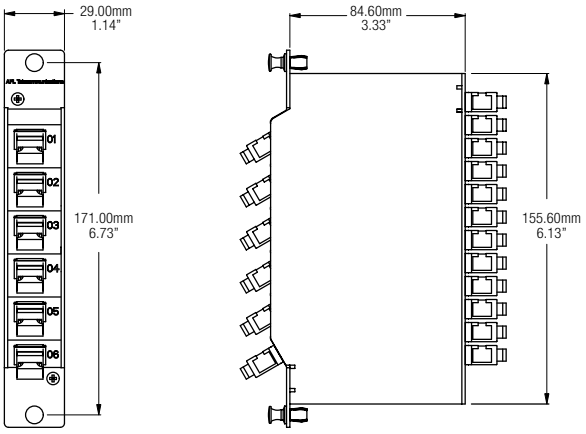
PARAMETER	VALUE
1550 Band – Port 1 (Pass)	1550-1560 nm
1310 + 1490 Band – Port 2 (Reflect)	1260-1360 & 1480-1500 nm
Insertion Loss	1550 < 1.2 dB 1310 + 1490 < 1.2 dB
Isolation	1550 > 25 dB 1310 + 1490 > 20 dB
PDL	<0.2 dB
PMD	< 0.2 ps
Return Loss	> 50 dB
Directivity	> 50 dB
Operating Temperature	-40 to +75 °C
Storage Temperature	-40 to +85 °C
Relative Humidity	0 to 90%
Optical Power	500 mW

PACKAGING	
Packaging Size	Standard Single Width LGX® Rack Module
Fiber Type	Low-Water-Peak Non-Dispersion Shifted SMF-28e
Connector Type	Port 3 (Common) – SC/APC Port 1 (Data) – SC/UPC Port 2 (Video) – SC/APC

Ordering Information

PART NUMBER	DESCRIPTION
CM000043	FTTX WDM Module

Dimensions



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CWDM (Coarse WDM) Module

AFL Telecommunications introduces four and eight channel Coarse WDM Modules (CWDM) in a cost effective, mechanically rugged LGX® footprint or tray mounted module. The CWDM Modules are available with an assortment of industry standard connector interfaces to meet varying system requirements. Based on proven thin film technology, 20nm channel spacing allows for repeatable channel isolation. Rugged cases and sealed modules allow for increased thermal stability and long-term service life performance.

Features

- Telcordia Qualified Components
- 20mm Channel Spacing
- Four or Eight Channel Separation
- Most Industry Standard Connectors
- Low Insertion Loss
- High Isolation

Applications

- CATV Systems
- Sensor Systems
- 10G Ethernet Systems
- Metro Optical Networks
- Metro Access Networks

Specifications

PARAMETER	4 CHANNEL			8 CHANNEL		
	MINIMUM	TYPICAL	MAXIMUM	MINIMUM	TYPICAL	MAXIMUM
Center Wavelength (nm)	1511, 1531, 1551, 1571			1471, 1491, 1511, 1531 1551, 1571, 1591, 1611		
Pass Channel Insertion Loss	—	1.6dB	2.0 dB	—	2.5dB	3.0dB
Passband Bandwidth	12nm	14nm	—	12nm	14nm	—
Passband Flatness	—	0.3dB	0.5dB	—	0.3dB	0.5dB
Adjacent Channel Isolation	30dB	40dB	—	30dB	40dB	—
Non-adjacent Channel Isolation	40dB	50dB	—	40dB	50dB	—
Return Loss	50dB	—	—	50dB	—	—
Directivity	50dB	—	—	50dB	—	—
Pdl	—	—	0.1dB	—	—	0.1dB
Pmd	—	—	0.1 ps	—	—	0.1 ps
Operating Temperature	-5ºC to +65ºC			-5ºC to +65ºC		
Storage Temperature	-40ºC to + 85ºC			-40ºC to + 85ºC		

Ordering Information

CWDM — 00 — 08 — 02 — USC

Mux / Demux
00 = Mux / Demux Pair
01 = Mux
02 = Demux

Channel Count
04 = 4 Channel
08 = 8 Channel

Package Type
01 = Tray Module
02 = LGX® Rack Module

Connector Interface
USC = SC UPC
ASC = SC APC
ULC = LC UPC
ALC = LC APC
UFC = FC UPC
AFC = FC APC

PASSIVE INFRASTRUCTURE

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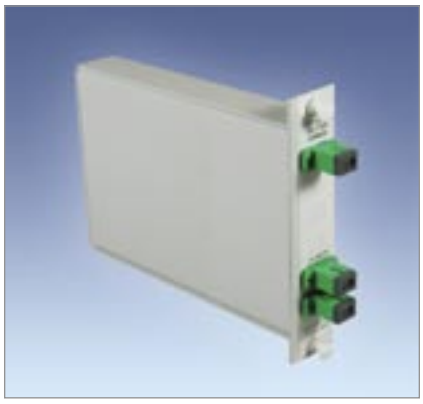

Coupler Modules

AFL Telecommunications' Coupler Modules offer management of optical power and wavelength. The modules are comprised of Telcordia-compliant PLC or concatenated fused biconic components and, once assembled and terminated, are fully tested for environmental, mechanical and optical integrity. All optical coupler modules are designed to customer specifications and are available in a variety of package platforms, including LGX®, RU (19" or 23") and custom designs.

Features

- Telcordia qualified components and connectors
- Low loss
- Low uniformity
- Available in LGX®, RU and custom designs
- Standard and custom ratios
- Rugged construction to ensure environmental, mechanical and optical integrity
- Termination options include SC, ST®, FC and LC
- Module color is central office white

Applications

- CATV
- Telco
- Wide Area Networks
- Fiber Monitoring Systems
- Military systems

Ordering Information

C	0102	50 00 20	F	ASC	00	ASC	00
Package Type	**Input/Output Ports**	**Coupling Ratio**	**Configuration**	**Input Connector/ Adapter**	**Input Pigtail Length (M)**	**Output Connector/ Adapter**	**Output Pigtail Length (M)**
(First Character)	0102 = 1 x 2	*(First Character)*	A = Input Rear Adapter Output Front Pigtail/Jumper	ASC = Angle SC	01 = 1 meter	ASC = Angle SC	01 = 1 meter
C = LGX® Compatible	0103 = 1 x 3	50 = 50%	C = Input Rear Adapter Output Front Adapter	AFC = Angle FC	00 = Adapter	AFC = Angle FC	00 = Adapter
D = 19" Rack Mountable	0104 = 1 x 4	45 = 45%	D = Input Front Pigtail/ Jumper Output Front Adapter	USC = Ultra SC		USC = Ultra SC	
	0105 = 1 x 5	40 = 40%	E = Input Front Pigtail/ Jumper Output Front Pigtail/Jumper	UFC = Ultra FC		UFC = Ultra FC	
	0106 = 1 x 6	35 = 35%	F = Input Front Adapter Output Front Adapter	SST = Super ST		SST = Super ST	
	0108 = 1 x 8	33 = 33%	G = Input Front Adapter Output Front Pigtail/Jumper	ULC = Ultra LC		ULC = Ultra LC	
	0110 = 1 x 10	30 = 30%		000 = Non-connectorized		000 = Non-connectorized	
		25 = 25%					
		20 = 20%					
		15 = 15%					
		10 = 10%					
		5 = 5%					
		WDM					
		(Second Character)					
		00 = WDM					
		(Third Character)					
		20 = Isolation					
		40 = Isolation					

Note:
Dynamic field expands to accommodate 1XN configurations

PASSIVE INFRASTRUCTURE

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Simplex Cable Assemblies

Features

- SC, FC, ST, LC and MU connectors
- 3.0mm, 2.0mm, 1.6mm, and 900µm cable diameter available
- RoHS compliant - Riser, Plenum, and LSZH rated cables available
- Cable compliant with Telcodia GR-409
- Telcodia GR-326 compliant connectors

Applications

- Building interconnections (campus LAN)
- Trunking lines direct to and patch panels within telecommunications closets
- Links between electronic equipment and fiber patch panels

Two-Fiber Cable Assemblies

Features

- SC, FC, ST, LC, MU and MT-RJ connectors
- RoHS compliant - Riser, Plenum, and LSZH rated cables available
- Cable compliant with Telcordia GR-409
- Telcodia GR-326 compliant connectors

Applications

- FDDI, 10 Gigabit Ethernet, ATM, and Fiber Channel protocols
- Communications closet to wall outlet - wall outlet to desk
- Interconnect and cross-connect

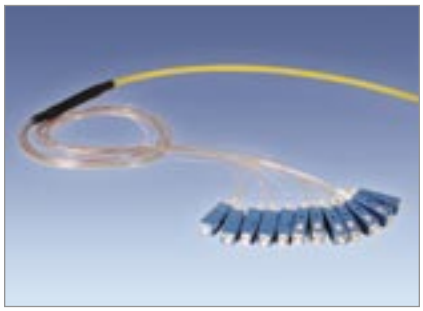
Quad Cable Assemblies

Features

- Easy routing 4.8mm cable diameter
- RoHS compliant - Riser, Plenum, and LSZH rated cables available
- 900um tight buffered fibers allow direct termination (no furcation needed)
- Cable tested to meet or exceed EIA/TIA 568-A/GR-409-CORE
- Telcodia GR-326 compliant connectors

Applications

- Loaded Panels
- Communications cables with both send-and-receive in a single unit
- Routing between communications closets and equipment rooms
- Intrabuilding backbones



Ribbon Cable Assemblies

Features

- Terminate with MTP/MPO connectors, or fan out for individual connectorization
- RoHS complaint - Riser, Plenum, and LSZH rated cables available
- Cable tested to meet or exceed EIA/TIA 568-A/GR-409-CORE
- Telcodia GR-326 compliant connectors

Applications

- Direct interface to computers with use of “backpane” style fiber connectors
- High density fiber management
- LAN/WAN Premises
- DWDM & Switching (Network Elements)
- Data Centers

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FAST™ Connectors

AFLs new FAST™ Connectors are pre-polished, field installable connectors that eliminate the need for hand polishing in the field. FAST® Connectors provide an immediate termination to either single-mode or multimode fibers and are color-coded for ease of fiber identification. Connectors for Laser Optimized 50µm (10G) fibers are also available.

FAST® Connectors feature a pre-stubbed factory-polished ferrule that couples to the fiber being terminated. Precision mechanical alignment insures low loss with a proprietary gel. A factory-installed wedge clip (included with each connector) holds the clamping mechanism open while the fiber is inserted. Once the fiber is in place, the wedge clip is removed and discarded. No special assembly tools required!

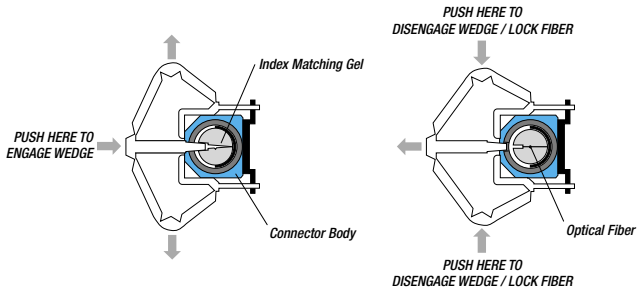
Features

- Easy assembly process
- Fiber can be reseated
- No expensive tools required
- No epoxy required
- Factory polishing eliminates loss concerns
- Meets TIA/EIA 568A performance requirements
- Meets TIA/EIA 604 (focis) connector interface specifications

Applications

- Premise environments
- Connections at the desk for LAN environments
- Patch panels
- Direct equipment termination
- Fiber to the Subscriber (FTTx) applications
- Repair/replacement requirements
- Equipment test leads

Operation



Specifications

PARAMETER		VALUE
Insertion Loss:	Single-mode 62.5/125 50/125 50/125 LO	Average: 0.2dB, Maximum: 0.5 dB Average: 0.1dB, Maximum: 0.5 dB Average: 0.1dB, Maximum: 0.5 dB Average: 0.1dB, Maximum: 0.5 dB
Return Loss (Single-mode)		Average: 56.4 dB, Maximum: 45 dB
Operating Temperature		–40°C to +75°C

Ordering Information

FAST™ SC CONNECTOR PART NUMBER	FIBER TYPE	HOUSING COLOR	CABLE SIZE
CS000825	Multimode 50/125	Black	250 or 900µm
CS000826	Multimode 62.5/125	Beige	250 or 900µm
CS000827	Single-mode	Blue	250 or 900µm
CS001267	LO Multimode 50/125	Aqua	250 or 900µm

FAST™ ST CONNECTOR PART NUMBER	FIBER TYPE	HOUSING COLOR	CABLE SIZE
CS000828	Multimode 50/125	Black	250 or 900µm
CS000829	Multimode 62.5/125	Beige	250 or 900µm
CS000830	Single-mode	Blue	250 or 900µm
CS002478	LO Multimode 50/125	Aqua	250 or 900µm

FAST™ LC CONNECTOR PART NUMBER	FIBER TYPE	HOUSING COLOR	CABLE SIZE
CS002438	Multimode 50/125	Black	250 or 900µm
CS002439	Multimode 62.5/125	Beige	250 or 900µm
CS002440	Single-mode	Blue	250 or 900µm
CS002460	LO Multimode 50/125	Aqua	250 or 900µm

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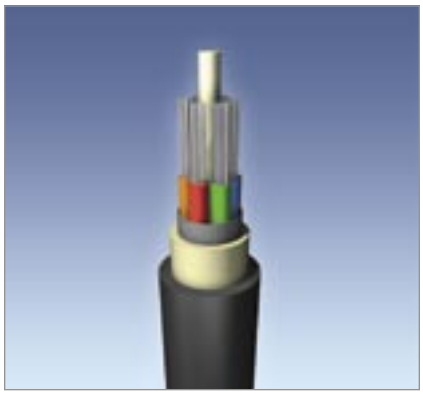


Non-Armored Loose Tube Cable – Single Jacket

Acting as the backbone for most of today's fiber based systems, stranded fiber optic cables play a critical role in the high speed network. AFL's Non-Armored Loose Tube fiber optic cables are designed to provide high fiber counts with the flexibility and versatility required for today's most demanding installations. Our cables feature fiber counts up to 576, compliance with EIA/TIA and REA/RUS PE-90, and are S-Z stranded for easy mid-span access. Industry standard designs combined with innovative technologies, such as a dry core product, yield a world class cable that will support today's and tomorrow's technological needs.

Product Applications

- Long Haul Networking
- Building Interconnections (Campus LAN)
- Trunking Lines Direct to Telecommunications Closet
- Local Loop
- Distance Learning
- Distribution
- Intrabuilding Backbones

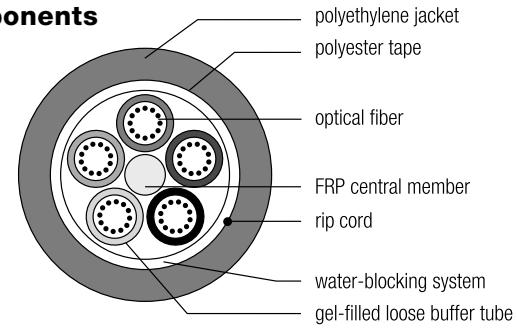
Temperature Range

Operating . . . . . -40ºC to +70ºC

Storage. . . . . -40ºC to +75ºC

Installation. . . . . -30ºC to +70ºC

Cable Components



Typical Lengths

MAXIMUM LENGTHS*				
FIBER COUNT	SINGLE-MODE		MULTIMODE	
	FEET	METERS	FEET	METERS
6 - 60	28,500	8,700	26,200	8,000
72 - 96	32,800	10,000	26,200	8,000
108 -120	31,100	9,500	26,200	8,000
132 - 144	22,900	7,000	23,000	7,000
146 - 216	22,900	7,000	20,000	7,000
218 - 288	16,400	5,000	16,400	5,000
290 - 432	14,100	4300	14,000	4,300
434 - 576	10,800	3300	11,000	3,300

* Longer lengths may be available upon request.

Optical Information

FIBER TYPE	MAXIMUM ATTENUATION (dB/km)				OVERFILL LAUNCH MIN. BANDWIDTH (MHz•km)		GIGABIT ETHERNET MIN. LINK DISTANCE (METERS)	
	850nm	1300nm	1310nm	1550nm	850nm	1300nm	850nm	1300nm
(6) 62.5/125 GIGA-Link™ 300	3.5	1.2	N/A	N/A	200	600	300	550
(8) 62.5/125 GIGA-Link™ 1000	3.5	1.2	N/A	N/A	350	600	500	1000
(5) 50/125 GIGA-Link™ 600	3.5	1.2	N/A	N/A	500	500	600	600
(7) 50/125 GIGA-Link™ 2000	3.5	1.2	N/A	N/A	500	800	750	2000
(L) 50 Laser-Link 300	3.5	1.2	N/A	N/A	1500	500	900	550
(9) Single-mode	N/A	0.4	0.4	0.3	N/A	N/A	N/A	N/A
(K) SM Futureguide SR-15e Bend Insensitive	N/A	0.5	0.5	N/A	N/A	N/A	N/A	5000

Gigabit Ethernet Minimum Link Distances are based on "bandwidth"/modal dispersion constraints.
Actual link distances may be constrained by attenuation, depending on specific loss budget.

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Non-Armored Loose Tube Cable – Single Jacket

Ordering Information

PART NUMBER	FIBER COUNT	NUMBER OF TUBES/FIBERS	NOMINAL DIAMETER		NOMINAL WEIGHT		MAXIMUM TENSILE LOAD LBS (N)		MINIMUM BEND RADIUS INCHES (CM)	
			INCHES	MM	LBS/1,000FT	KG/KM	SHORT TERM	LONG TERM	SHORT TERM	LONG TERM
LE006✶C5101N1	6	1w/6 (4 fillers)	0.41	10.5	57	85	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE012✶C5101N1	12	1w/12 (4 fillers)	0.41	10.5	57	85	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE018✶C5101N1	18	1w/12,1w/6 (3 fillers)	0.41	10.5	60	90	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE024✶C5101N1	24	2w/12 (3 fillers)	0.41	10.5	60	90	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE030✶C5101N1	30	2w/12,1w/6 (2 fillers)	0.41	10.5	60	90	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE036✶C5101N1	36	3w/12 (2 fillers)	0.41	10.5	60	90	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE048✶C5101N1	48	4w/12 (1 filler)	0.41	10.5	60	90	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE060✶C5101N1	60	5w/12 (no fillers)	0.41	10.5	60	90	600 (2670)	200 (890)	8.2 (21.0)	4.1 (11.0)
LE072✶C6101N1	72	6w/12 (no fillers)	0.45	11.5	71	105	600 (2670)	200 (890)	9.0 (22.0)	4.5 (11.5)
LE084✶C8101N1	84	7w/12 (1 filler)	0.52	13.3	84	125	600 (2670)	200 (890)	10.4 (27.0)	5.2 (14.0)
LE096✶C8101N1	96	8w/12 (no fillers)	0.52	13.3	84	125	600 (2670)	200 (890)	10.4 (27.0)	5.2 (14.0)
LE108✶CA101N1	108	9w/12 (1 filler)	0.59	15.1	99	147	600 (2670)	200 (890)	11.8 (31.0)	5.9 (16.0)
LE120✶CA101N1	120	l0w/12 (no fillers)	0.59	15.1	99	147	600 (2670)	200 (890)	11.8 (31.0)	5.9 (16.0)
LE132✶CC101N1	132	11w/12 (1 filler)	0.67	17.0	115	171	600 (2670)	200 (890)	13.4 (34.0)	6.7 (17.0)
LE144✶CC101N1	144	12w/12 (no fillers)	0.67	17.0	115	171	600 (2670)	200 (890)	13.4 (34.0)	6.7 (17.0)
LE216✶Cl301N1	216	18w/12 (no fillers)	0.69	17.4	150	223	600 (2670)	200 (890)	14.0 (35.0)	6.9 (18.0)
LE288✶CO301N1	288	24w/12 (no fillers)	0.79	20.1	192	285	600 (2670)	200 (890)	17.3 (41.0)	7.9 (21.0)
LE432✶lO301N1	432	24w/18 (no fillers)	0.87	22.0	226	336	600 (2670)	200 (890)	17.4 (44.0)	8.7 (22.0)
LE576✶OO301N1	576	24w/24 (no fillers)	1.00	25.3	309	460	600 (2670)	200 (890)	20.1 (51.0)	10.2 (26.0)

Note: Diameter and weight subject to change without notice

✶ Fiber Types – Replace asterisk (✶) in part number with number corresponding to desired fiber type below.

5 = 50/125µm multimode GIGA-Link™ 600
7 = 50/125µm multimode GIGA-Link™ 2000
6 = 62.5/125µm multimode GIGA-Link™ 300
8 = 62.5/125µm multimode GIGA-Link™ 1000
9 = Single-mode
L = 50/125µm multimode Laser-Link™ 300
K = SM Futureguide SR-15e Bend Insensitive
Q = Non-zero dispersion-shifted single-mode

Reel Information

ITEM	REEL A		REEL B		REEL C	
	INCHES	CM	INCHES	CM	INCHES	CM
Reel Height	42	106.7	58	147.3	66	167.6
Reel Width Outside	36	91.4	38	96.5	42	106.7
Reel Width Inside	32	81.6	32	81.3	36	91.4
Drum Diameter	23	58.7	28	71.1	36	91.4
Arbor Hole Diameter	3	7.9	3	7.9	3	7.9
Reel Weight With Lagging	180 lbs	82 kg	420 lbs	191 kg	685 lbs	311 kg

AFL typically provides Loose Tube cable on three standard sizes of non-returnable wooden reels. Non-standard reel sizes are available upon request.
Larger reel sizes may be required to accomodate long cable lengths.

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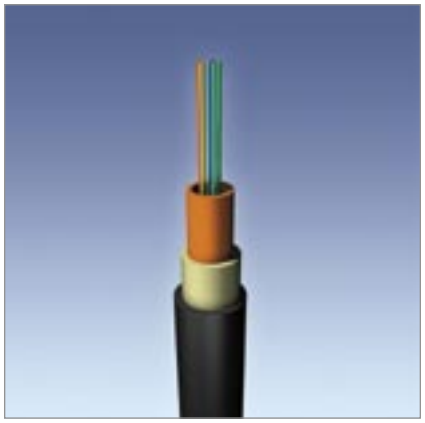


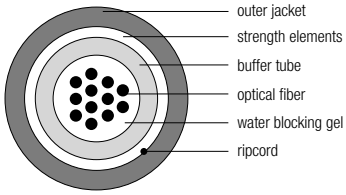
Uniflex® Indoor/Outdoor Loose Tube Cable

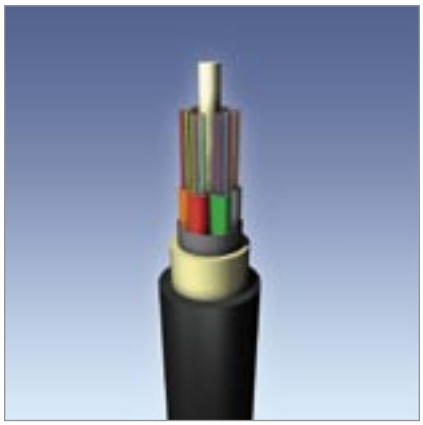
Single tube products allow for installations that require a high degree of flexibility combined with a small cable diameter. AFL Telecommunications's Uniflex® is the ultimate solution for flexible, connectorized applications, as well as crowded ducts in existing fiber applications, and can be lashed to an aerial messenger.

Applications

- Service (Drop) Cables
- Building Interconnections (Campus LAN)
- Connectorized Trunking Cables
- Distance Learning
- Distribution

Cable Components





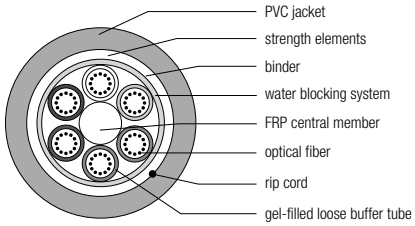
Indoor/Outdoor Loose Tube Cable

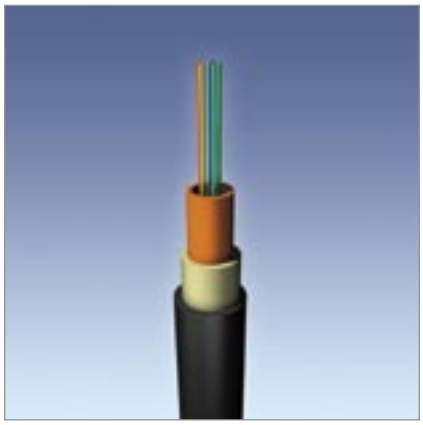
Indoor/outdoor stranded loose tube combines the robust mechanical and environmental characteristics of an outside plant cable with the flexibility of an inside plant riser cable. Costly splice locations entering a building are avoided, routing directly from the outside plant to telecommunications closets, or distribution frames through the riser of a building.

Applications

- Building Interconnections (Campus LAN)
- Trunking Lines Direct to Closet
- Local Loop
- Distance Learning
- Distribution
- Intrabuilding Backbones

Cable Components



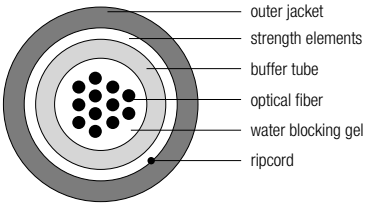


Uniflex® Non-Armored Loose Tube Cable

Product Applications

- Service (Drop) Cables
- Building Interconnections (Campus LAN)
- Connectorized Trunking Cables
- Distance Learning
- Distribution

Cable Components



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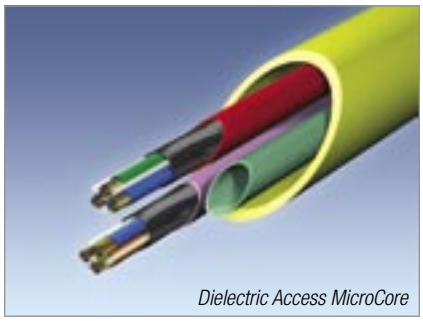
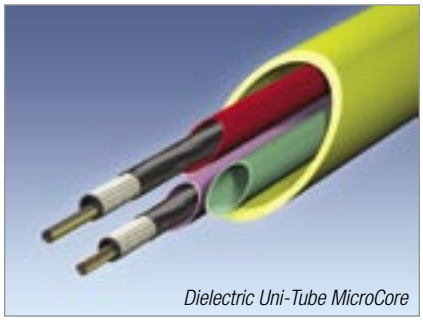
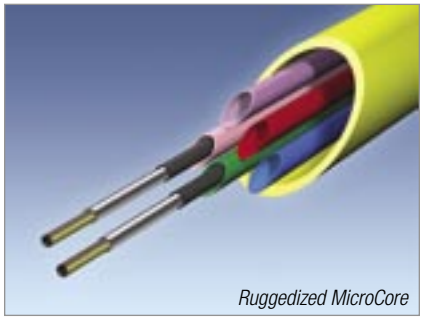


Dielectric Access MicroCore



Dielectric Uni-Tube MicroCore



Ruggedized MicroCore

MicroCore®

MicroCore® is an advanced fiber optic cable technology that allows maximum utilization of existing or future conduit systems with minimal initial investment. Using microduct technology, MicroCore cables are jetted through a network of microducts. Changing or adding to your network is as simple as jetting new fiber optic cables through existing microducts that are part of your conduit system. That reduces up-front capital costs and allows you to build a network to the size you need it today, while providing the ability to easily expand future capacity.

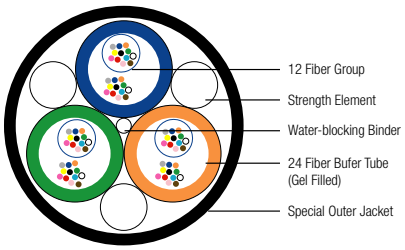
Specifications

FIBER TYPE	MAXIMUM ATTENUATION (dB/km)				BANDWIDTH (MHz• km)	
	850 nm	1300 nm	1310 nm	1550 nm	850 nm	1300nm
62.5/125	3.5	1.2	n/a	n/a	200	600
50/125	3.5	1.2	n/a	n/a	500	500
Single-mode	n/a	n/a	0.40	0.30	n/a	n/a

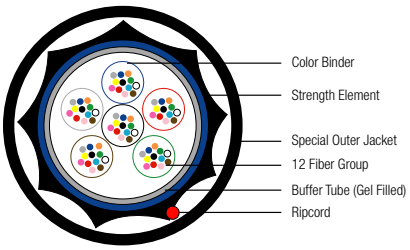
MECHANICAL DATA	DIELECTRIC ACCESS MICROCORE		DIELECTRIC UNI-TUBE MICROCORE		RUGGEDIZED MICROCORE	
Fiber Count (groups of 12)	Up to 72		Up to 72		Up to 72	
Diameter, nominal	7.3 mm	.29 in	5.9 mm	.23 in	5.5 mm	.22 in
Weight, typical	37kg/km	25 lbs/ 1000 ft	35kg/km	24 lbs/ 1000 ft	40kg/km	27 lbs/ 1000 ft
Short-term allowable tension (installation)	2139 N	481 lbs.	1600 N	360 lbs.	1335 N	300 lbs.
Long-term allowable tension (post-installation)	706 N	159 lbs.	533 N	120 lbs.	445 N	100 lbs.
Bend Radius (installation)	15.0 cm	5.9 inches	17.7 cm	6.9 inches	13.8 cm	5.5 inches
Bend Radius (post-installation)	8.0 cm	3.1 inches	12.0 cm	4.7 inches	8.3 cm	3.3 inches
Temperature Range Operation/Installation Storage	-40°C to 70°C -50°C to 75°C					
Outer Jacket Color	Black					
Wualified Ratings	Telcordia GR-20-CORE, Issue 2					

Cable Diagrams

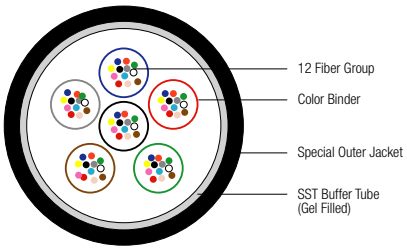
Dielectric Access MicroCore:



Dielectric Uni-Tube MicroCore:



Ruggedized MicroCore:



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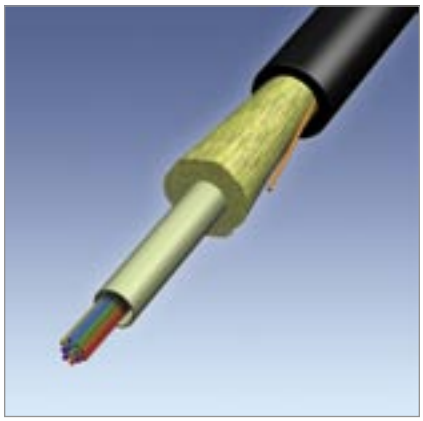


Aerial Drop Cable

Aerial Drop Cable is specifically designed for Fiber-to-the-Subscriber applications. It is a round, all dielectric cable ideally suited for self-supporting outdoor installations as well as in lashed or conduit builds.

Features

- Designed for use with inexpensive attachment hardware
- Compatible with standard splice closures
- Self-supporting
- Small cross section for maximum density in closures and conduit

6-Fiber Design

Typical Spans with 2.0% Installation Sag:

- NESC Heavy 150 ft (46 meters)
- NESC Medium 275 ft (84 meters)
- NESC Light 550 ft (168 meters)

12-Fiber Design

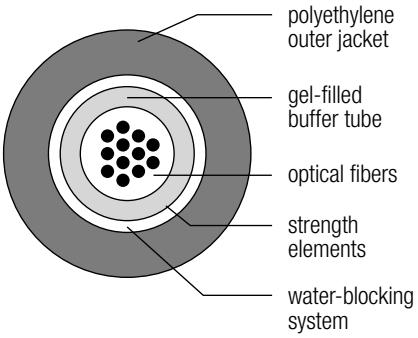
Typical Spans with 1.5% Installation Sag:

- NESC Heavy 220 ft (67 meters)
- NESC Medium 400 ft (122 meters)
- NESC Light 675 ft (206 meters)

Temperature Range

Operating	- 40ºC to + 70ºC
Storage	- 50ºC to + 70ºC
Installation	- 30ºC to + 70ºC

Cable Components



Mechanical Data

FIBER COUNT	NOMINAL DIAMETER		NOMINAL WEIGHT		MAXIMUM LENGTHS*			
					SINGLE-MODE		MULTIMODE	
	INCHES	MM	LBS/1000'	KG/KM	FEET	METERS	FEET	METERS
1 - 6	.256	6.5	23	34	32,800	10,000	26,250	8,000
7 - 12	.307	7.8	34	50	27,500	8,400	26,250	8,000

* Longer lengths may be available upon request.

Installation Information

FIBER COUNT	MAXIMUM LOADING OPERATING TENSION		MINIMUM BENDING RADIUS (DYNAMIC)		MINIMUM BENDING RADIUS (STATIC)	
	LBS	N	INCHES	CM	INCHES	CM
1 - 6	361	1604	5	13	2.5	6.5
7 - 12	589	2607	6	16	3	8

Ordering Information

FIBER COUNT	FIBER TYPE	PART NUMBER	MAXIMUM ATTENUATION (DB/KM)			BANDWIDTH (MHZ•KM)	
			850NM	1300NM	1550NM	850 NM	1300 NM
1 - 6	62.5/125 Giga-Link™ 300	AE00666110AA9	3.5	1.2	N/A	200	600
7 - 12		AE0126C110AC1					
1 - 6	50/125 Giga-Link™ 600	AE00656110AA9	3.5	1.2	N/A	500	500
7 - 12		AE0125C110AC1					
1 - 6	Single-mode	AE00696110AA9	N/A	0.4	0.3	N/A	N/A
7 - 12		AE0129C110AC1					

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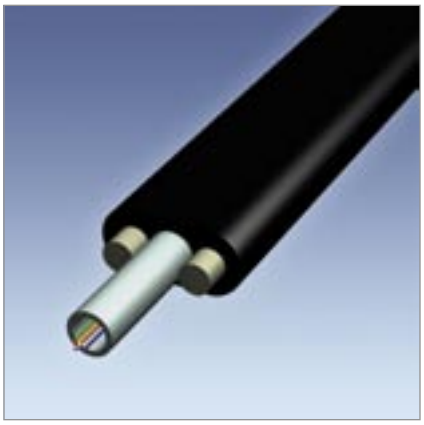
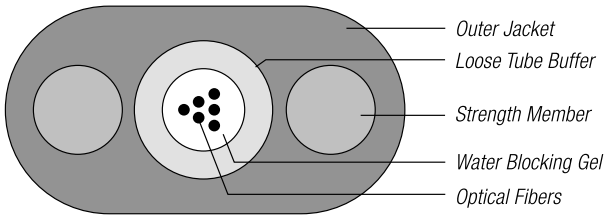


AFL Flat-Span Drop Cable

Designed for quick installation and ease in handling, AFL Flat-Span Drop Cable serves as the last link for the FTTx networks of today. The design is constructed utilizing proven buffer tube technology with a single tube containing up to six fibers. Two diametrically opposed dielectric rods are placed alongside the buffer tube to provide the mechanical properties of the cable. The finished product, with its compact flat profile, acts as a self-supporting aerial solution for those last mile drops to the customer's home or office.

Cable Components



Mechanical Data

PARAMETER	U.S.	METRIC
Fiber Count (max.)	6	6
Cable Dimensions:	.141" x .276"	3.6mm x 7.0mm
Linear Weight:	.020 lbs/ft	31 kg/km
Max. Rated Cable Load: MRCL	323 lbs	147 kg
Bend Radius, installation	5.91"	15cm
Bend Radius, post-installation	3.94"	10 cm

Operational/Installation Data

PARAMETER	VALUE		
Operation / Installation Temperature	-40°C to +70°C		
Storage Temperature	-40°C to +75°C		
Loading	NESC		
	Light	Medium	Heavy
Maximum Span Lengths (ft)	550	290	155
Maximum Span Lengths (meters)	168	88	47
Minimum Installation Sag (% of span)	3%	3%	3%

Note: Larger spans can be achieved if necessary with installation sags larger than 3% of span.

Fiber Information

FIBER TYPE	MAXIMUM ATTENUATION (dB/km)	
	1310nm	1550nm
Single-mode	0.35	0.25

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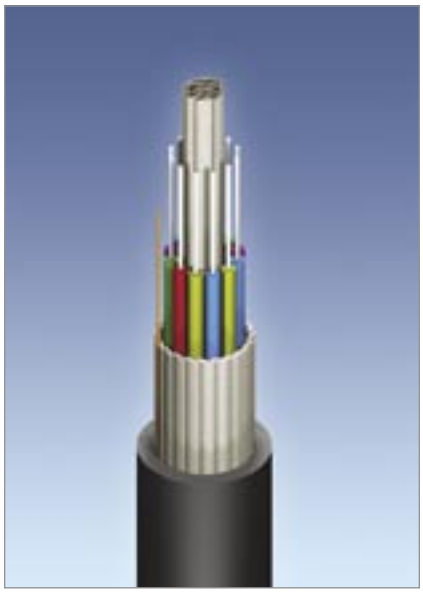


Indoor/Outdoor Riser Tight Buffered Cable

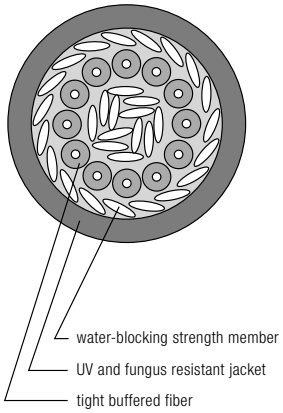
Indoor/Outdoor Tight Buffered cables are specified for campus network cabling between buildings where interbuilding lengths are short enough that the installer can recognize savings from the lower costs of terminating tight buffered cables.

For indoor applications the cable is OFNR listed. For outdoor applications the cable is manufactured with an outer jacket that incorporates a UV stabilizer for protection against exposure to the sun plus an anti-fungus protection for use in underground applications. Plenum Tight Buffered cable is also available. Contact AFL customer service.

Features

- Cables are water blocked and meet water penetration requirements of GR-20-CORE (this helps ensure that any damage to cable is restricted to a repairable length of several meters and minimizes the likelihood of having to replace the entire cable)
- Outer jacket is moisture-resistent, fungus-resistent and UV resistant for outdoor use
- With a riser rating, this cable can be used in all environments: riser, general inside plant and outside plant
- Tested to meet or exceed EIA/TIA 568-A / GR-409-CORE

Cable Components



Mechanical Data

CABLE TYPE	PART NUMBER	FIBER COUNT	NOMINAL DIAMETER	WEIGHT	TENSION		BENDING RADIUS	
					LBS (N)		INCHES (CM)	
	PLENUM		INCHES (MM)	LBS/1000FT (KG/KM)	INSTALLATION	LONG TERM	INSTALLATION	LONG TERM
Indoor/Outdoor Tight Buffered Cable		2	0.19 (4.8)	18 (27)	243 (1082)	121 (541)	3.8 (9.6)	1.9 (4.8)
	KR004*481001	4	0.19 (4.8)	18 (27)	243 (1082)	121 (541)	3.8 (96)	1.9 (4.8)
	KR006*591001	6	0.23 (5.9)	22 (33)	243 (1082)	121 (541)	4.6 (11.8)	2.3 (5.9)
	KR008*641001	8	0.25 (6.4)	26 (38)	388 (1726)	194 (863)	5.0 (12.8)	2.5 (6.4)
	KR012*741001	12	0.29 (7.4)	39 (59)	388 (1726)	194 (863)	5.8 (14.8)	2.9 (7.4)
	KR018*821001	18	0.32 (8.2)	50 (75)	398 (1774)	199 (887)	6.4 (16.4)	3.2 (8.2)
	KR024*891001	24	0.35 (8.9)	54 (80)	398 (1774)	199 (887)	7.0 (17.8)	3.5 (8.9)

* Please specify fiber type when ordering (see below)

5 = 50/125µm multimode GIGA-Link™ 600
7 = 50/125µm multimode GIGA-Link™ 2000
6 = 62.5/125µm multimode GIGA-Link™ 300
8 = 62.5/125µm multimode GIGA-Link™ 1000
9 = 9/125µm single-mode
L = 50/125µm multimode Laser-Link 300 for 10 Gigabit Ethernet
K = Single-mode Futureguide SR-15e Bend Insensitive

Contact Customer Service for special fiber types/performance needs.
Standard jacket color is black. Other colors available by request.

Temperature Specifications

TEMPERATURE RANGE		
OPERATING	INSTALLATION	STORAGE
-40°C to +75°C	-10°C to +70°C	-40°C to +75°C

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Indoor/Outdoor Riser Tight Buffered Cable

Specifications

CORE SIZE/ FIBER TYPE	MAXIMUM ATTENUATION (DB/KM)			OVERFILL LAUNCH MIN. BANDWIDTH (MHZ•KM)		EMB_C (MHZ•KM)	GIGABIT ETHERNET MIN. LINK DISTANCE (METERS)		10 GIGABIT ETHERNET MIN. LINK DISTANCE (METERS)	
	850NM	1300NM	1550NM	850NM	1300NM		850NM	1300NM	850NM	1300NM
(6) 62.5 Giga-Link™ 300	3.5	1.2	N/A	200	600	N/A	300	550	32	—
(8) 62.5 Giga-Link™ 1000	3.5	1.2	N/A	350	600	N/A	500	1000	65	—
(5) 50 Giga-Link™ 600	3.5	1.5	N/A	500	500	N/A	600	600	82	—
(7) 50 Giga-Link™ 2000	3.5	1.2	N/A	500	800	N/A	750	2000	110	—
(A) 50 Laser-Link 150	3.0	1.2	N/A	700	500	950	800	550	150	—
(L) 50 Laser-Link 300	3.0	1.2	N/A	1500	500	2000	1000	550	300	—
(C) 50 Laser-Link 550	3.0	1.2	N/A	4700	550	3500	1040	550	550	—
(K) SM Futureguide SR-15e Bend Insensitive	N/A	0.5	0.5	N/A	N/A	N/A	N/A	5000	N/A	10,000
(9) SM	N/A	0.5	0.5	N/A	N/A	N/A	N/A	5,000	N/A	10,000
(1) 100/140 Multimode	5.5	3.5	N/A	100	100	N/A	N/A	N/A	N/A	N/A

Tested to meet or exceed EIA/TIA 568-B3 / Telcordia GR-409-CORE

Maximum Cable Length - Reel Size

ITEM	FIBER BOX*	REEL A	REEL B	REEL C	REEL D	REEL E
Reel/Box Height (inches)	15.13	16	24	30	34	34
Reel/Box Outside Width (inches)	13.0	15	17	15.25	21.25	20
Drum Diameter (inches)	8.0	8	12	12	12	24
Reel Weight (lbs)	6.0	10	23	34	44	48
CAPACITY: METERS (FEET)						
2 Fiber	305 (1,000)	1,000 (3,281)	3,200 (10,500)	5,000 (16,404)	—	—
4 Fiber	305 (1,000)	1,000 (3,281)	3,200 (10,500)	5,000 (16,404)	—	—
6 Fiber	305 (1,000)	—	2,000 (6,561)	3,400 (11,154)	5,000 (16,404)	—
8 Fiber	—	—	1,700 (5,577)	4,000 (9,514)	5,000 (16,404)	—
12 Fiber	—	—	1,250 (4,100)	2,100 (6,890)	4,000 (13,123)	—
18 Fiber	—	—	—	—	—	1,500 (4,921)
24 Fiber	—	—	—	—	—	1,500 (4,921)

***** Add suffix "–XMFBOX" to cable part number to specify "Fiber-In-A-Box" solution. "X" indicates length of cable in thousands of feet. Only available in standard lengths as indicated in chart above.

EXAMPLE: KR0029481001–3MFBOX

Would be the resulting part number for 3,000 feet of KR002*481001 cable with 9/125µm single-mode fiber and the Fiber-In-A-Box solution. Refer to Fiber-In-A-Box data at front of catalog.

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Fiber-In-A-Box

AFL's "Fiber-In-A-Box" solution offers contractors lightweight, easy to use cable packaging with "out of the box" disbursement of fiber cable. No reel supports or pay-off's are required. Simply set the box down in a convenient place, unlock the built-in braking mechanism and begin pulling. Adjust the braking mechanism to apply the amount of pulling tension required. Stack and configure boxes together to disburse cable from several reels at the same time. Available in 1000, 2000 and 3000 foot lengths, this unique cable package solution will save contractors valuable time and cost.

Features/Benefits

- Light weight and easy to transport with grips on both sides of the box for easy handling
- Eliminates the need for reel supports and cable spooling equipment
- Unique braking mechanism allows reel to be locked in place within carton during transport and provides control of tension during cable pulls
- Boxes can be stacked and configured to support easy pay-off of multiple cable runs
- Wording under feed-through slot reminds installers of proper pulling methods for optical cable
- Factory packaging ensures cable is not "over-stressed" in non-factory cable cutting operations where personnel may not be sensitive to proper handling of fiber optic cable
- Available in 1000, 2000 and 3000 feet lengths, depending on cable diameter
- Easy access to reel from top allows installers to repackage excess cable removed from box
- Easy way to organize, store and manage short lengths of excess cable

Applications

- Horizontal cabling / Fiber-to-the-Desk
- Fiber Drops within MDU's
- Short to medium length cable runs between buildings

Ordering Information

Add suffix "-XMFBOX" to part number to specify "Fiber-In-A-Box" solution where X indicates length of the cable in thousands of feet (1, 2, or 3).

AFL CABLES AVAILABLE FOR PURCHASE WITH "FIBER-IN-A-BOX" PACKAGING SOLUTION:

FIBER COUNT	CABLE TYPE	MF – THOUSANDS OF FEET
1	Simplex, 3mm	1, 2, 3
2	Zipcord, 3mm	1, 2
2	Dual-Link (Round), 4.8mm	1
4	Quad-Link	1
6, 8, 12	Circular Premise Cable	1
2, 4, 6	Indoor/Outdoor Tight Buffered Cable (Plenum or Riser)	1
2	High Impact Indoor Cable	2
4, 6, 8, 12	High Impact Indoor Cable	1

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SpliceMate shown with kit

SpliceMate shown with Portable Workstation

SpliceMate™
HANDHELD FUSION SPLICER

SpliceMate™ FSM-11R & FSM-11S Fusion Splicers

SpliceMate (FSM-11) is the world's smallest and most portable fusion splicer and is designed to meet the challenges posed by today's fiber networks. SpliceMate fits in the palm of your hand, yet it's smart and reliable enough to be used with confidence by inexperienced operators.

SpliceMate's advanced intelligence features include two-camera fiber inspection to insure the splice is right and Auto Arc Calibration...an industry first. It's easy to operate and quickly makes low loss splices with all common types of optical fibers up to 4-fiber ribbons. SpliceMate is available with a variety of powering options including a battery pack and adapters to work with AC or DC power sources.

A workstation, specifically designed for the SpliceMate, is available for simplified splicing in the field. Whether splicing on a pole, in a bucket, or in a neighborhood...SpliceMate is the friend to have along on the job!

Features

- Highly portable
- Dual camera inspection
- 3.5" dual direction monitor
- Single or 4-fiber versions available
- 40 second tube heater
- Auto arc calibration
- 30 mph wind protector

Specifications

PARAMETER	VALUE
Model	FSM-11R Fusion Splicer FSM-11S Fusion Splicer
Applicable Fibers	SMF, MMF, NZ-DSF, DSF
Number of Fiber	Single fiber (FSM-11S) / up to 4-fiber ribbon (FSM-11R)
Cladding Diameter	125µm
Coating Diameter	250µm and 900µm
Typical Average Splice Loss	SMF = 0.05dB / MMF = 0.02dB
Splicing Time	FSM-11R (20 seconds) / FSM-11S (11 seconds)
Arc Calibration Method	Automatic and manual methods
Splicing Modes (40)	Auto SM / NZ / DS Auto MM SM, MM, NZ-DSF, DSF
Splice Loss Estimate	Based on dual camera inspection
Monitor	3.5", adjustable monitor angle (front or top selectable)
Tube Heating Time	40 seconds
Number of Splice / Heat with Battery	30
Power Supply	AC, DC, Battery
Terminals	USB
Wind Protection	30 mph
Dimensions	110W x 80D x 100H (mm) / 4.33W x 3.14D x 3.94H (inches)
Weight with Battery	0.80kg / 1.76 lbs.

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FSM-11R & FSM-11S Fusion Splicers

Ordering Information

FSM-11R SPLICER (4-Fiber Ribbon Version - Splicer only)

ITEM NUMBER	DESCRIPTION
S013960	FSM-11R Fusion Splicer
(Included with the Splicer)	- FSM-11R Fusion Splicer - FH-50-4 Fiber Holders - BTC-04 Battery Charger - BTR-07 Battery - Spare Electrodes (Pair) - Operation Manual - Transit Case

FSM-11R SPLICER KIT (4-Fiber Ribbon Version - Kit)

ITEM NUMBER	DESCRIPTION
S013992	FSM-11R Fusion Splicer Kit
(Included in the kit)	- FSM-11R Fusion Splicer - FH-50-4 Fiber Holders - BTC-04 Battery Charger - BTR-07 Battery - Spare Electrodes (Pair) - Operation Manual - Transit Case - CT-30 Cleaver - HJS-03 Battery Powered Hot Jacket Stripper

FSM-11S SPLICER (Single Fiber Ribbon Version - Splicer only)

ITEM NUMBER	DESCRIPTION
S013956	FSM-11S Fusion Splicer
(Included with the Splicer)	- FSM-11S Fusion Splicer - FH-50-250 Fiber Holders - BTC-04 Battery Charger - BTR-07 Battery - Spare Electrodes (Pair) - Operation Manual - Transit Case

FSM-11S SPLICER KIT (Single Fiber Ribbon Version - Kit)

ITEM NUMBER	DESCRIPTION
S013988	FSM-11S Fusion Splicer Kit
(Included with in the kit)	- FSM-11S Fusion Splicer - FH-50-250 Fiber Holders - BTC-04 Battery Charger - BTR-07 Battery - Spare Electrodes (Pair) - Operation Manual - Transit Case - CT-30 Cleaver

Accessories & Supplies

CLEAVERS		
S014076	CT-30 Cleaver	Both FSM-11R & FSM-11S
S014092	FC-02 Fiber Collector	Both FSM-11R & FSM-11S
S014104	FDB-02 Fiber Collector Scrap Box	Both FSM-11R & FSM-11S

POWER AND CORDS		
S014000	BTC-04 Battery Charger for SpliceMate (charges BTR-07)	Both FSM-11R & FSM-11S
S014004	BTR-07 Battery for SpliceMate	Both FSM-11R & FSM-11S
S014008	DCA-02 DC Adaptor for SpliceMate (needed for AC operation)	Both FSM-11R & FSM-11S
S012548	ADC-10 AC Adapter (SpliceMate and the 40F/PM)	Both FSM-11R & FSM-11S

MISCELLANEOUS		
S013800	FH-50-250 Fiber Holders (250µm single fiber)	Both FSM-11R & FSM-11S
S013804	FH-50-900 Fiber Holders (900µm single fiber)	Both FSM-11R & FSM-11S
S013812	FH-50-4 Fiber Holders	FSM-11R (only)
S013808	FH-50-2 Fiber Holders	FSM-11R (only)
S014052	SpliceMate Portable Workstation	Both FSM-11R & FSM-11S
S014108	Aerial Mounting Kit	Both FSM-11R & FSM-11S
S013996	HJS-03 Battery Powered Hot Jacket Stripper (includes DCC-11 cord)	FSM-11R (only)
S014024	LC-01 Leather Case for SpliceMate	Both FSM-11R & FSM-11S
S014028	Electrodes: FSM-11S/R	Both FSM-11R & FSM-11S
S002111	FAT-02 Fiber Arrangement Tool	FSM-11R (only)
S010212	FAT-04 Fiber Arrangement Tool	FSM-11R (only)
S008720	FAA-03 Ribbon Forming Adhesive (4 oz. bottle)	FSM-11R (only)
S008622	FAA-03 Ribbon Forming Adhesive (0.5 liter bottle)	FSM-11R (only)

SpliceMate™
HANDHELD FUSION SPLICER

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Top and Front Monitor Positions

Changing Monitor Positions

FSM-17S Fusion Splicer

The FSM-17S establishes a new standard for single fiber "fixed v-groove" type fusion splicers with a host of improvements including a 35 second tube heater, dual position monitor, and a longer battery life. The real time arc calibration feature makes field maintenance easier than ever. Also available now is a version of the FSM-17S utilizing a fiber holder system, making the splicing process extremely simple for inexperienced technicians. The FSM-17S is well suited for FTTX applications and both models quickly attach to the newly redesigned ASW-02 workstation making, field portability a breeze.

Features

- 35 second tube heater
- Dual direction monitor position
- Long life battery
  (up to 160 splices/shrinks per charge)
- Automatic arc calibration
- Available in either sheath clamp or fiber holder models

Specifications

PARAMETER	VALUE
Model	FSM-17S: Fiber Sheath Clamp Model FSM-17S-FH: Fiber Holder Model
Applicable Fibers	SM (ITU-T G.652), MM (ITU-T G.651), DS (ITU -T G.653), NZDS (ITU-T G.655)
Cladding Diameter	125µm
Coating Diameter	FSM-17S: 250µm to 1000µm FSM-17S-FH: 250µm using the FH-50-250 fiber holder or 900µm using the FH-50-900 fiber holder
Fiber Cleave Length	FSM-17S: 8 to 16mm with 250µm coating diameter. 16mm with 900µmcoating diameter.
Typical Average Splice Loss	0.05dB with SM, 0.02dB with MM, 0.08dB with DS, 0.08dB with NZDS. Measured by cut-back method relevant to ITU-T and IEC standards.
Splicing Time	Typical 11seconds with standard SM fiber
Arc Calibration Method	Automatic, using results of previous splice when in AUTO mode. Manual arc calibration function available.
Splicing Modes	40 user programmable modes and up to 60 modes for reference (factory predetermined setting).
Splice Loss Estimate	Based upon dual camera cladding alignment data.
Storage of Splice Result	The last 2000 results to be stored in the internal memory.
Fiber Display	X / Y, or both X and Y simultaneously. Front or rear monitor display options.
Magnification	316x for single X or Y view, or 158x for X and Y view.
Viewing Method	Dual cameras with 5.6 inch color LCD monitor.
Operating Condition	0 to 5,000m above sea level, 0 to 95%RH and -10 to 50°C respectively.
Mechanical Proof Test	2N
Tube Heater	Built-in tube heater with 10 heating modes and up to 20 modes for reference.
Tube Heating Time	Typical 35 seconds with FP-03 protection sleeve.
Applicable Protection Sleeve Length	60mm, 40mm, micro
No.of Splice/heat With Battery	Typical 80 cycles with BTR-06(S) / Typical 160 cycles with BTR-06(L).
Power Supply	Auto voltage selection from 100 to 240V AC or 10 to 15V DC with ADC-11. 13.2V DC with BTR-06(S)/(L).
Terminals	USB 1.1 (USB-B type) for PC communication. Video terminal RCA video jack / NTSC.
Wind Protection	Max. wind velocity of 15m/s. (34 mph)
Dimensions	150W x 150D x 150H (mm) / 5.9W x 5.9D x 5.9H (inches)
Weight	2.6 kg (5.7 lbs.) including AC adapter ADC-11

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FSM-17S Fusion Splicer

Ordering Information

DESCRIPTION	PART #
FSM-17S Fusion Splicer (machine only) Each FSM-17S Fusion Splicer includes; ADC-11 AC adapter/battery charger, AC cord, carrying strap, spare electrodes (pair), instruction manual, transit case.	S013612
FSM-17S Fusion Splicer Kit The kit includes a CT-30A Cleaver in addition to the FSM-17S, ADC-11 AC adapter/battery charger, AC cord, carrying strap, spare electrodes (pair), instruction manual, transit case.	S013616
FSM-17S Fusion Splicer Kit with Battery and Charge Cord The kit includes a BTR-06(S) battery, DCC-10 battery charge cord, and CT-30A Cleaver in addition to the FSM-17S, ADC-11 AC adapter/battery charger, AC cord, carrying strap, spare electrodes (pair), instruction manual, transit case.	S013880
FSM-17S-FH Fusion Splicer (machine only) Each FSM-17S-FH Fusion Splicer includes; FH-50-250 Fiber Holder (1 pair), FH-50-900 Fiber Holder (1 pair), ADC-11 AC adapter/battery charger, AC cord, carrying strap, spare electrodes (pair), instruction manual, transit case.	S013832
FSM-17S-FH Fusion Splicer Kit The kit includes a CT-30 Cleaver in addition to the FSM-17FH, FH-50-250 Fiber Holder (1 pair), FH-50-900 Fiber Holder (1 pair), ADC-11 AC adapter/battery charger, AC cord, carrying strap, spare electrodes (pair), instruction manual, transit case.	S013836

Accessories Recommended for FSM-17S

DESCRIPTION	PART #
Cleavers	
CT-30 Cleaver	S014076
CT-30A Cleaver	S014080
Fiber Holders (pairs	
FH-50-250 (250 µm coated single fiber)	S013800
FH-50-900 (900 µm jacketed single fiber)	S013804
Batteries & Power Cords	
ADC-11 AC Adapter/Battery Charger	S013516
BTR-06S Battery (80 splice/heating cycles)	S013520
BTR-06L Battery (160 splice/heating cycles)	S013528
DCC-10 Power Cord (connects ADC-11 to BTR-06S or BTR-06L)	S013524
DCC-12 Power Cord (connects ADC-11 to cigarette lighter socket)	S013552
DCC-13 Power Cord (connects ADC-11 to power source via alligator clips)	S013556
Miscellaneous	
ELCT2-20A Electrodes (17S)	S013532
ASW-02 Aerial Workstation	S010532
WT-6 Work Table	S013536
WTS-06 Work Table Support	S013544
MGS-05 Magnifier	S013548
JP-04 Splice Sleeve Cooling Tray	S013628
Transit Case (17S)	S013884

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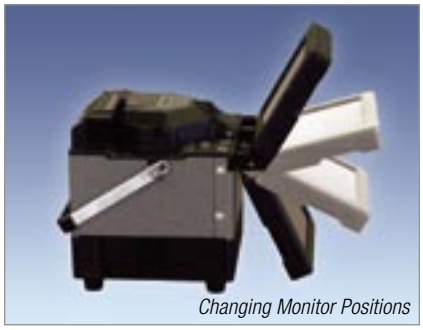
Top and Front Monitor Positions



Changing Monitor Positions

Features

- Automatic core to core, low-loss splicing regardless of fiber quality or age
- 9-second splicing time
- 35-second heat time (60mm sleeve)
- Dual, user selectable monitor position
- Excellent visibility in bright sunlight with 5.6" TFT Color LCD display
- Automatic arc calibration
- Long life battery (up to 160 splice/shrink cycles per charge)

FSM-50S Fusion Splicer

The FSM-50S Fusion Splicer sets the standard for core alignment fusion splicers. The FSM-50S is the fastest field splicer available, and completes a splice and tube heat in a total of 44 seconds. Special features include its small size and weight - the smallest in the industry - and the legendary ruggedness Fujikura is known for. The FSM-50S also includes user-friendly features such as calibration-free arc adjustments, automatic fiber type identification and reduced operational steps. The FSM-50S also offers increased flexibility for various splicing tasks with user-selectable front and back monitor positioning.

Specifications

PARAMETER	VALUE
Model	FSM-50S Fusion Splicer
Applicable Fibers	SM (ITU-T G.652), MM (ITU-T G.651), DS (ITU -T G.653), NZDS (ITU-T G.655)
Cladding Diameter	80µm -150µm
Coating Diameter	100µm to 1000µm
Fiber Cleave Length	8 to 16mm with 250µm coating diameter. 16mm with 900µmcoating diameter.
Typical Average Splice Loss	0.02dB with SM, 0.01dB with MM, 0.04dB with DS, 0.04dB with NZDS. Measured by cut-back method relevant to ITU-T and IEC standards.
Splicing Time	Typical 9 seconds with standard SM fiber
Arc Calibration Method	Automatic, using results of previous splice when in AUTO mode. Manual arc calibration function available.
Splicing Modes	40 user programmable modes and up to 60 modes for reference (factory predetermined setting).
Splice Loss Estimate	Based upon dual camera core alignment data.
Storage of Splice Result	The last 2000 results to be stored in the internal memory.
Fiber Display	X / Y, or both X and Y simultaneously. Front or rear monitor display options.
Magnification	295x for single X or Y view, or 147x for X and Y view.
Viewing Method	Dual cameras with 5.6 inch color LCD monitor.
Operating Condition	0 to 5,000m above sea level, 0 to 95%RH and -10 to 50°C respectively.
Mechanical Proof Test	2N
Tube Heater	Built-in tube heater with 30 heating modes.
Tube Heating Time	Typical 35 seconds with FP-03 protection sleeve.
Applicable Protection Sleeve Length	60mm, 40mm, micro
No.of Splice/heat With Battery	Typical 80 cycles with BTR-06(S) / Typical 160 cycles with BTR-06(L).
Power Supply	Auto voltage selection from 100 to 240V AC or 10 to 15V DC with ADC-11. 13.2V DC with BTR-06(S)/(L).
Terminals	USB 1.1 (USB-B type) for PC communication. Video terminal RCA video jack / NTSC.
Wind Protection	Max. wind velocity of 15m/s. (34 mph)
Dimensions	150W x 150D x 150H (mm) / 5.9W x 5.9D x 5.9H (inches)
Weight	2.8 kg (6.4 lbs.) including AC adapter ADC-11

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FSM-50S Fusion Splicer

Ordering Information

DESCRIPTION	PART #
FSM-50S Fusion Splicer (Machine Only) Each FSM-50S Fusion Splicer comes with ADC-11 AC adapter/battery charger, AC cord, spare electrodes (pair), monitor cover, operation manual, and transit case.	S013510
FSM-50S Fusion Splicer Kit (includes cleaver) Each FSM-50S Fusion Splicer Kit includes: Fusion Splicer with ADC-11 AC adapter/battery charger, CT-30A Cleaver, AC cord, spare electrodes (pair), monitor cover, operation manual, and transit case.	S013512

Accessories Recommended for the FSM-50S

DESCRIPTION	PART #
Cleavers	
CT-30A Cleaver	S014080
Batteries & Power Cords	
ADC-11 AC Adapter/Battery Charger	S013516
BTR-06S Battery (80 splice/heating cycles)	S013520
BTR-06L Battery (160 splice/heating cycles)	S013528
DCC-10 Power Cord (connects ADC-11 to BTR-06S or BTR-06L)	S013524
DCC-12 Power Cord (connects ADC-11 to cigarette lighter socket)	S013552
DCC-13 Power Cord (connects ADC-11 to power source via alligator clips)	S013556
Miscellaneous	
ELCT2-20A Electrodes	S013532
ASW-02 Splicing Workstation	S010532
WT-6 Work Table	S013536
WTS-06 Work Table Support	S013544
JP-04 Splice Sleeve Cooling Tray	S013628
50S Set Plate “B” (allows 10mm cleave of 900µm) (includes installation)	S013564
Transit Case (50S)	S013540
One year extended warranty	S012996
Two year extended warranty	S013000

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M200 Handheld OTDR

The Noyes M200 from AFL Telecommunications offers unmatched OTDR capabilities in a handheld package weighing less than 1 kg (2 lb). Multimode, Single-mode, and 'Quad' wavelength models are offered. With short dead zone and intermediate range specifications, the M200 is ideal for Tier 2 testing of premises (building and campus) networks or certification and troubleshooting of FTTX PON networks. And its bright, transflective display makes it suitable for both indoor and outdoor operation.

The M200 is based on a new hardware/software platform that supports automatic and manual setup, precision event analysis, dual-wavelength testing, fiber identification using Noyes 'TR' test receivers, rich file naming and folder setup, 6 hour battery life, internal and removable media data storage, and USB connectivity. Test ports are equipped with tool-free adapters, which can be changed in seconds. Results are saved as industry standard .SOR files. Unit firmware, user settings, and test results are saved in non-volatile memory.

Features

- 850/1300/1310/1550 nm
- 1.5 m (typ.) event dead zone
- 22 dB (MM), 26 dB (SM) dynamic range
- Integrated VFL (650 nm)
- Tool-free, switchable adapters (ST/SC/FC)
- Bellcore (GR-196) .SOR file format
- CompactFlash™ memory card
- Tool-free Lilon battery (6 hour life)
- Transflective (indoor/outdoor) touch-screen display

Ordering Information

MODEL NUMBER	DESCRIPTION
M200-K-QUAD	850/1300 nm multimode and 1310/1550 nm single-mode OTDR. (2) ST, (2) SC, and (1) FC test port adapters included
M200-K-MM	850/1300 nm multimode OTDR. ST and SC port adapters included
M200-K-SM	1310/1550 nm single-mode OTDR. SC and FC port adapters included

All models include a rugged, soft-sided carry case with shoulder strap, 110/220 VAC power adapter with country-specific power cord, and user guide.

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Specifications

PARAMETER	MULTIMODE	SINGLE-MODE
Emitter Type	Laser	
Safety Class	Class 1 FDA 21 CFR 1040.0 & 1040.11	
Center Wavelengths	850/1300 nm	1310/1550 nm
Wavelength Tolerance	± 20 / ± 30 nm	± 20 / ± 30 nm
Dynamic Range (SNR = 1)	22 dB	26 dB
Event Dead Zone [1]	1.5 m	1.5 m
Attenuation Dead Zone [2]	9 m	9 m
Pulse Widths [3]	10, 30, 100, 300 ns, 1, 3 µs	10, 30, 100, 300 ns, 1, 3, 10 µs
Range	250 m to 64 km	250 m to 208 km
Data Points	Up to 16,000	Up to 16,000
Data Point Spacing	0.25 m (range ≤ 4 km) Range/16000 (range ≥ 8 km)	
Group Index of Refraction (GIR)	1.4000 to 1.6000	
Trace File Format	Bellcore GR-196 Version 1.1	
Trace File Storage Medium	Internal, non-volatile memory and removable Compact Flash Card	
Trace File Storage Capacity	> 100 internal; thousands on Compact Flash	
Distance Uncertainty (m)	± (1 + 0.005% x distance + data point spacing)	
VISUAL FAULT LOCATOR SPECIFICATIONS		
Emitter Type	Laser	
Safety Class	Class II FDA 21 CFR 1040.10 & 1040.11; IEC 825-1:1993, EN60825-1:1994	
Wavelength	650 nm	
Output Power (nominal)	0.8 mw	
GENERAL SPECIFICATIONS		
Size (in boot)	23 x 11 x 7 cm (8.8 x 4.3 x 2.8 inches)	
Weight	0.9 kg (2 lb)	
Operating Temperature	-10 to +50 °C	
Storage Temperature	-20 to +60 °C	
Relative Humidity	0 to 95% RH (non-condensing)	
Power	Removable Lilon or 110/220 VAC power adapter	
Battery Life	6 hours	

All specifications are subject to change.

1. Typical distance between the two points 1.5 dB down each side of a reflective spike caused by a -40 dB (Multimode) or -45 dB (single-mode) event using 10 ns pulse width.
2. Typical distance from event location to point where trace is within 0.5 dB of backscatter.
3. 3 µs pulse width not available at 850 nm.

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OFL 200 Single-mode OTDR

The OFL 200 OTDR sets new standards for size, weight, ease-of-use, and value in a telco/broadband OTDR. Smaller than many optical loss test sets, the OFL 200 has the range, features, and price to make it the perfect OTDR for outside plant crews installing and maintaining optical fiber cables in broadband, metro, access, and FTTH networks.

Unlike 'optical fault locators', which detect only reflective events, the OFL 200 is a true OTDR, which detects fiber backscatter as well as fresnel reflections. Thus, the OFL 200 can locate reflective and non-reflective breaks, including those caused by crushed fibers. In addition, the OFL 200 provides an integrated 650 nm visual fault locator (VFL) for short-distance troubleshooting and fiber tracing.

In its [Full Auto] mode, the OFL 200 measures fiber length and sets range, pulse width, and averaging time automatically. [Full Auto] mode is ideal for operators not familiar with OTDRs. [Semi Auto] mode allows the user to set range while the OFL 200 sets all other parameters. [Manual] mode is available for experienced users. [Live] mode is provided for first connector checking and troubleshooting.

The fast change switchable adapter allows the OTDR to interface launch cables with a variety of connector styles. The OFL 200 can internally store up to 48 traces. Using the supplied serial cable, saved traces can be transferred to a PC for archiving, printing, and analyzing with the supplied Trace600 Windows® software. Test results are stored in Bellcore [*.sor] GR-196 Version 1.1 format.

Features and Applications

- Rugged, handheld, lightweight
- Designed for field use
- 1550 nm single-mode OTDR
- > 70 km effective range
- Locates reflective and non-reflective breaks
- Built-in 650 nm visual fault locator (VFL) with universal adapter
- Switchable OTDR port adapter
- Cursor and zoom controls to measure event loss, reflectance, and location
- Automatic, semi-automatic, and manual setup modes
- Launch level connection quality indicator
- Large LCD with Backlight
- Free Windows® compatible software to view, print, and archive test records
- Rechargeable NiMH battery pack, AC adapter, or optional AA alkaline
- Wide temperature range: -10 to + 50°C

Ordering Information

MODEL	INCLUDES
OFL 200 OTDR	SC, FC adapter caps (ST, LC available), universal AC power adapter, country- specific line cord, user's guide, and carry case.

Specifications

OFL 200 OTDR	
PARAMETER	**VALUE**
Emitter type	Laser
Safety class	Class I, FDA 21 CFR 1040.10 & 1040.11
Center wavelength (nominal)	1550 nm
Dynamic range (SNR = 1)	24 dB @ 10 µs, 3 min. test
Event dead zone [1]	2 m typical / 3 m maximum
Attenuation dead zone [2]	14 m typical / 18 m maximum
Number of data points	4000 on ranges ≥ 4 km
Resolution	1 m on ranges ≤ 4 km; Range / 4,000 on ranges > 4 km

VISUAL FAULT LOCATOR (VFL)	
Emitter type	Laser
Safety class:	Class II, FDA 21 CFR 1040.10 & 1040.11 IEC 825-1: 1993, EN60825-1: 1994
Wavelength	650 nm
Output power (nominal)	0.8 mW into 9 µm single-mode optical fiber

GENERAL	
Size (H x W x D)	190 x 112 x 47 mm (7.5 x 4.4 x 1.9 inches)
Weight	0.6 kg (1.3 lb)
Operating temperature	-10 oC to + 50 oC, 0 to 95% RH (non-condensing)
Storage temperature	-20 oC to + 60 oC, 0 to 95% RH (non-condensing)
Power	Rechargeable NiMH or AC adapter. Optional 4 x AA Alkaline
Battery life with backlight ON	NiMH: > 8 hours; 4 x AA: > 13 hours

[1] 1.5 dB down from each side of the peak, -45 dB reflective event
[2] From the start of an event to within 0.5 dB of backscatter, -45 dB reflective event

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SLP4-7 Triple Wave Test Kit with Wave ID and Set Reference

Triple wavelength single-mode test kits are available in two models, SLP4-7 or SLP4-FTTH. The SLP4-7 and SLP4-FTTH model combine the OPM 4-4D optical power meter and either OLS7-3 (1310/1550/1625 nm) or OLS7-FTTH (1310/1490/1550 nm) LASER source respectively.

The OLS7 features triple wavelength LASER output from a single output port and is easy to operate. The LASER output is stabilized to ensure accurate test results per current TIA/EIA requirements. Each wavelength may be transmitted individually at CW or with tone modulation at frequencies of 270Hz, 330Hz, 1kHz and 2kHz. Also, each wavelength may be transmitted with Wave ID. When transmitting with Wave ID, the OLS7 will also support transmitting pairs of wavelengths in an alternating pattern and triple wavelengths in a sequential pattern. The OLS7 output port is equipped with a UCI based removable adapter to allow the output connector to be inspected and cleaned.

The OPM 4-4D offers Wave ID, automatic wavelength identification and switching, when used with the OLS7. Multiple test Tone detection is provided for fiber identification. The OPM 4-4D stores optical references for each calibrated wavelength. An easy to read Dual Wavelength LCD display with Backlight shows measured power [dBm or µW] or insertion loss [dB], calibrated wavelengths, tone signal [Hz], wavelength ID, and the battery charge status. The OPM 4-4D optical input port accepts Noyes thread-on style adapter caps. Adapter caps are required for operation and must be ordered separately.

In addition to being powered by two AA alkaline, the OPM 4-4D or OLS7 can be powered by optional AC adapter and/or rechargeable NiMH battery pack.

The OPM 4-4D and OLS7 are fully N.I.S.T. traceable.

Features

- Rugged, handheld, lightweight
- Designed for field use
- Wave ID - automatic wavelength identification and switching
- Triple Wave ID, dual Wave ID, single Wave ID, CW, and modulated Tone
- 270 Hz, 330 Hz, 1 kHz, and 2 kHz Tone
- Large LCD with Backlight
- Power measurements in dBm or µW; insertion loss in dB
- Reference power level storage
- AA alkaline, optional rechargeable NiMH battery pack or AC adapter
- Low battery indicator
- Cost-effective, easy to use
- N.I.S.T traceable

Applications

- Passive Optical Networks (PON) testing
- Certify single-mode links per TIA/EIA standards
- Modulation Tone mode for fiber identification to isolate specific fibers in a bundle prior to splicing or rerouting

Ordering Information

MODEL	INCLUDES
SLP4-7	OLS7-3 optical light source, OPM 4-4D optical power meter, AA batteries, protective rubber boots, adapter cap, user's guide, and carry case.
SLP4-FTTH	OLS7-FTTH optical light source, OPM 4-4D optical power meter, AA batteries, protective rubber boots, adapter cap, user's guide, and carry case.

Test jumpers and connector adapters are required for operation (purchased separately). Test jumpers with a variety of connector styles and fiber types and adapter caps for most common connectors may be purchased from AFL Telecommunications.

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continued on the next page

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SLP4-7 Triple Wave Test Kit with Wave ID and Set Reference

OLS7 Specifications

OPTICAL	MODEL OLS7 - FTTH			MODEL OLS7		
Wavelength (±20 nm)	1310 nm	1490 nm	1550 nm	1310 nm	1550 nm	1625 nm
Spectral width	5 nm	3 nm	5 nm	5 nm	5 nm	2 nm
Output power	-5 dBm (typical) into 9/125 fiber					
Emitter type	Laser, Class I (FDA 21 CFR 1040.10 and 1040.11)					
Output stability	± 0.05 dB over 1 hr. (after 15 min warm-up, after 30 sec typical) ± 0.1 dB over 8 hrs (after 15 min warm-up, after 30 sec typical)					
Connectors	UCI based adapters: SC standard, FC & ST available, LC optional					
Tone output	270 Hz, 330 Hz, 1 kHz, 2 kHz					
GENERAL	**MODELS OLS7 - FTTH & OLS7**					
Power	2 AA alkalines. Optional: NiMH rechargeables or external AC adapter					
Battery life	Minimum 85 hours (with one laser active)					
Operating temp.	-10° to 50°C, 90% RH (non-condensing)					
Storage temp.	-30° to 60°C, 90% RH (non-condensing)					
Size (H x W x D)	5.5 x 3.2 x 1.5 in (14.0 x 8.1 x 3.8 cm)					
Weight	0.66 lb (0.3 kg)					

All specifications at 25°C

OPM 4-4D specifications

OPTICAL	OPM 4-4D
Calibrated wavelengths	850, 980, 1310, 1490, 1550, 1625 nm
Detector type	Filtered InGaAs
Measurement range	+26 to -50 dBm
Tone detect range	+6 to -30 dBm +6 to -25 dBm for 850 nm
Wavelength ID range	+6 to -30 dBm +6 to -25 dBm for 850nm
Accuracy*	± 0.25 dB
Resolution	0.01 dB
Measurement units	dB, dBm, µW
GENERAL	
Power	2 x AA batteries, optional NiMH
Battery life (2 x AA)	300 hours with backlight [Off] 20 hours with backlight [On]
Operating temperature	-10 to 50°C, 90% RH (non-condensing)
Storage temperature	-30 to 60°C, 90% RH (non-condensing)
Size (H x W x D)	5.5 x 3.2 x 1.5 in (14.0 x 8.1 x 3.8 cm)
Weight	0.58 lb (0.26 kg)

* Accuracy measured at 25ºC and -10 dBm per N.I.S.T. standards.
All specifications at 25°C

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OFI Optical Fiber Identifiers

Noyes Optical Fiber Identifiers are rugged, handheld, and easy-to-use fiber optic test instruments designed to detect optical signals transmitted through a single-mode fiber without disrupting traffic. During installation, maintenance, rerouting, or restoration; it is often necessary to isolate a specific fiber. By simply clamping an Optical Fiber Identifier onto a gently bent fiber, the unit will indicate if there is [No Signal], [Tone], or [Traffic] and identify signal direction.

Features

- Rugged, handheld, lightweight
- Accepts 250µm, 900µm coated fiber, 3mm jacketed fiber cable, and ribbon
- No head swapping or adjustments
- Identifies light carrying fiber
- Low insertion loss - traffic remains uninterrupted
- Indicates direction of traffic
- Indicates Tone signal visually and audibly
- 2 kHz Tone detection - OFI 200 models
- 270 Hz, 330 Hz, 1 kHz, and 2 kHz Tone detection - OFI 400 models
- Easy-to-read LCD display with Backlight - OFI 400 models
- Measures fiber core or relative power - OFI 400 models
- Power Off and Set Reference feature - OFI 400 models
- Battery operated - low battery indicator

Ordering Information

MODEL	INCLUDES
OFI 200D	User's guide and carry case
OFI 400	User's guide and carry case

Specifications

DETECTABLE SIGNAL RANGE

FIBER TYPE	PARAMETER	WAVELENGTH, SIGNAL	OFI 200D	OFI 400
250 µm coated fiber (SMF-28 with 250 µm CPC6 coating)	Minimum detect level (average power, typical)	1310 nm, CW or Traffic 1310 nm, Tone 1550 nm, CW or Traffic 1550 nm, Tone	-40 dBm -43 dBm -45 dBm -50 dBm	-45 dBm -45 dBm -50 dBm -50 dBm
	Insertion loss (typical)	1310 nm 1550 nm	0.6 dB 2.5 dB	0.6 dB 2.5 dB
3 mm jacketed fiber (SMF-28 with 250 µm CPC6 coating and 3 mm, yellow jacket)	Minimum detect level (average power, typical)	1310 nm, CW or Traffic 1310 nm, Tone 1550 nm, CW or Traffic 1550 nm, Tone	-30 dBm -32 dBm -33 dBm -37 dBm	-30 dBm -30 dBm -33 dBm -33 dBm
	Insertion loss (typical)	1310 nm 1550 nm	0.8 dB 2.5 dB	1.0 dB 2.8 dB

OPTICAL SPECIFICATIONS

PARAMETER	OFI 200D	OFI 400
Detector type	InGaAs	
Wavelength range	800 - 1700 nm	
Calibrated size of fiber and wavelength	N/A	250 µm (SMF-28) @1550 nm
Fiber stress	<100 kPSI max	
Fiber size	250 µm, 900 µm, 2 mm or 3 mm jacketed & ribbon fiber	
Tone detection	2000 ±100Hz	270, 330, 1000, or 2000 Hz (±5%)
Core power measurement range	N/A	+13 dBm to – 50 dBm SMF28/28E 250um @ 1550nm
Measurement units	N/A	dBm, dB

GENERAL SPECIFICATIONS

Display Type	N/A	Multi 7 segment LCD; 3 LEDs; 1 piezo buzzer
Power	1 x 9V Alkaline	2 x 1.5V Alkaline
Battery life	>10,000 operations typical	>10,000 operations typical
Operation temperature	0° to 50°C 90% RH (Non-condensing)	
Storage temperature	-30 to +60°C 90% RH (Non-condensing)	
Dimensions (H x W x D)	8.5 x 1.5 x 1.1 in. (22 x 3.8 x 2.8 cm)	
Weight	7.5 oz. (210 g)	6 oz (168 g)

1 250µm coated fiber parameters are specified with OFI plunger in the "250/900/RIB" position. 2mm/3mm jacketed fiber parameters are specified with OFI plunger in the "2 mm/ 3 mm" position.
2 Unless noted otherwise, all specifications are typical. Actual results can vary by several dB depending on fiber type, coating material, jacket color, jacket hardness, and other factors. All specifications stated above are as measured at 25°C.
3 [CW] is a light signal that is not modulated. [Traffic] is a light signal modulated by a random data sequence. [Tone] is a light signal modulated into a nominal 50% duty cycle square wave.

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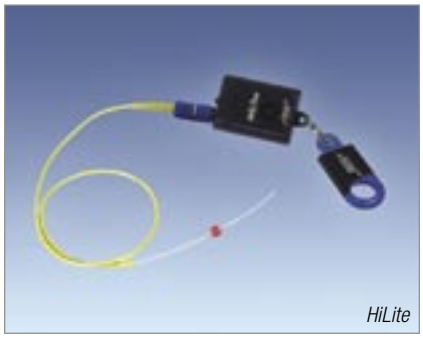
Visible Laser Sources

VFI 2

HiLite & VFI2

The HiLite and VFI 2 are compact but powerful visible red laser sources designed to troubleshoot faults on fiber optic cables. Light generated by these units will escape from sharp bends and breaks in jacketed or bare fibers, as well as poorly mated connectors. They can identify faults in fiber optic jumper cables, distribution frames, patch panels, and splice trays. The HiLite and VFI 2 are an excellent complement to an OTDR because they can locate faults inside the OTDR's dead-zone. Other applications include end-to-end continuity checks, identifying connectors in patch panels and fibers during splicing operations. The universal connector interface provides fast operation with many connector styles without changing an adapter.



HiLite

MT Tracer (12-Fiber VFI and Display)

The MT Tracer is a compact multi-fiber visual fault identifier (red laser source) supporting 8 or 12 fiber MTP® connections. The user simply connects the 12-fiber cable directly to the unit. Fibers can be tested individually or all at once. By progressing sequentially through the fibers, cables can be quickly checked for polarity by verifying the proper order at the output. The MT Tracer Display is a passive optical device designed to receive the light from the MT Tracer Source and provide an eye-safe method of viewing the red light. Identification is accomplished by expanding the output of the MT ferrule to a large easy to read panel - large enough to be read from several feet away.

MT Display *MT Tracer*

Specifications

MODEL	VFI 2	HILITE	MT TRACER SOURCE
Wavelength	650 nm	650 nm	650 nm
Optical Output Power (into Single-mode fiber)	1 mW, 2 Hz or CW	1 mW, 2 Hz	1 mW, 2 Hz or CW
Emitter Type	Laser	Laser	Laser
Safety Class	FDA 2, IEC 2	FDA 2, IEC 2	FDA 2, IEC 2
Connector Type	Universal 2.5 mm	Universal 2.5 mm	MTP®
Power	2 AA	1 AAA Alkaline	2 AA
Battery Life	60 hrs.	4 hrs.	40 hrs.

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FCP1 Fiber Cleaning Pack

AFL Telecommunications offers a complete selection of Noyes brand fiber optic cleaning kits for field cleaning of connector end faces in fiber frames, adapters and on jumpers. Using our exclusive FCC2 non-hazardous cleaning fluid and CCT molded cleaning tips, the FCP1 Series of kits delivers compact, safe, easy to use, reliable cleaning for all types of fiber optic connector end faces including Military and Multiple Fiber Ferrule designs. A wide variety of pre-stocked kits make ordering easy. Choose from the following standard kits or call us at 800-321-5298 for a custom kit to meet your application needs. Each kits consists of a wall or rack mountable carry case, FCC2 cleaning fluid, and color-coded instructions.

Ordering Information

A wide variety of pre-stocked kits make ordering easy. Choose from the following standard kits or call us at 800-321-5298 for a custom kit to meet your application needs. Each standard kit consists of a wall or rack mountable carry case, FCC2 cleaning fluid, and color-coded instructions.

Choose from the following to fill a pack that's right for you

APPLICATION	MATERIALS	DESCRIPTION
For cleaning connector end-faces within alignment sleeves (bulkhead adaptors, female socket connectors)	FCC2	Optical quality cleaning fluid
	CCTS-25	2.5mm cleaning tips for FC, SC, ST type standard connectors
	CCTS-12	1.25mm cleaning tips for LC, MU type small form factor connectors
	CCTS-16	1.6mm cleaning tips for 2.0mm and 1.6mm termini in military connectors and D4 connectors
For cleaning ferrule end-faces that are exposed (jumpers and patch cords)	FCC2	Optical quality cleaning fluid
	Cletop	Reel type cleaner
	CCTP-25	Universal cleaning tip for exposed ferrule and termini end-faces on jumpers or military connectors
For cleaning alignment sleeves	FCC2	Optical quality cleaning fluid.
	ACT01	2.5mm swabs for FC, SC, ST type standard connectors
	ACT02	1.25mm swabs for LC, MU type small form factor connectors
	Cletop Stick-Type	2.0mm swabs for D4 connectors
Additional options	Canned air	For cleaning work area
	VS 300 OFS 300-200 OFS 300-400	Optical or video microscope for end-face inspection

See individual data sheets for specification on individual supplies.

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FPF1 – Fiber Preparation Fluid

FPF1 is a non-flammable, environmentally safe, solvent engineered to clean fibers after stripping, before fusion splicing or field termination. This product is exclusively produced for Noyes Test & Inspection by Micro Care Corporation, a world leader in cleaning solvents.

Cletop-A

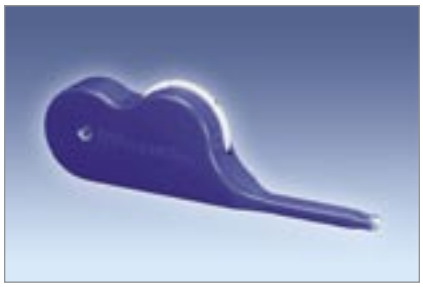
Cletop-S

Cletop Ferrule Cleaner

The Cletop Automatic Ferrule Connector Cleaner quickly and effectively cleans fiber optic connectors without the need for alcohol or solvent wipes. The dry woven cloth effectively removes dirt, dust, oil, grease and debris from connector and end face. The Cletop-A is designed to clean SC, ST and FC connector types, while the Cletop-S has an open cleaning slot more suitable for LC, MTP and MT-RJ connectors.

Ordering Information

MODEL NUMBER	DESCRIPTION	PART NUMBER
Cletop-A	Cleaner for SC, ST and FC connectors	C036692
	Refill for Cletop-A	C036684
Cletop-S	Cleaner for LC, MTP and MT-RJ connectors	CS000135
	Refill for Cletop-S	CS000136



MPO Cleaner (MPO-CLK-A)

The MPO Cleaner is a high-performance device designed for cleaning the ferrule endfaces of MPO (MTP®) connectors. This tool cleans the fiber endface without the use of alcohol. It also effectively cleans all 12 fibers at once.

Ordering Information

MODEL	DESCRIPTION	PART NUMBER
MPO-CLK-A	Cleaner for MPO and MTP connectors	CS000710

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